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THE numerous alterations and additions that have been made to the Survey and Settlement Manual since it was printed in 1900, as well as the passing of the Bengal Tenancy Amendment Act, I of 1907, have rendered the issue of a new edition necessary. The complete transfer of cadastral survey operations from the supervision and control of the Survey of India Department to the Settlement Department which has been effected of recent years, has also made it necessary to considerably enlarge that portion of the Manual which contained the rules applicable to survey. As a fresh edition of the Manual thus enlarged would have been inconveniently bulky, it has been considered advisable to separate the Survey and Settlement portions and to issue two Manuals instead of one, each complete in itself. The new Survey Manual has been prepared by Mr. J. Reid, Settlement Officer of Chota Nagpur, and has been edited by Mr. H. McPherson, Director of Land Records. The Board are much indebted to these officers for the care and attention they have bestowed on the work.

2. The Manual is interleaved with blank pages to allow of the insertion of additions or alterations made subsequent to its issue. All correction slips should be entered in their proper places.

3. Errors and omissions in the Manual should be brought to the notice of the Board.

4. This Manual is to be cited as "The Bengal Survey Manual, 1908."

BOARD OF REVENUE, L. P., }
The 1st December, 1908. }

E. LISTER,
Offg. Secretary.

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CHAPTER I.

Preliminary.

1. Surveys may be made under the older Settlement Laws* with a view to settlements of Land Revenue, or under the following Acts:—
- * Regulations VII of 1822, IX of 1825, IX of 1833, and Act VIII (B.C.) of 1879.

(1) Of the Governor-General's Council—

Act IX of 1847 (Assessment of Alluvion).

Act I of 1894 (Land Acquisition).

Act VIII of 1885 (The Bengal Tenancy Act), as amended by Act III (B.C.) of 1898 and Act I (B.C.) of 1907.

(2) Of the Bengal Council—

Act V (B.C.) of 1875 (Survey).

Act III (B.C.) of 1876 (Irrigation).

Act VI (B.C.) of 1880 (Drainage).

Act II (B.C.) of 1882 (Embankments).

Act V (B.C.) of 1897 (Partition of Estates).

The following rules relate primarily to surveys under the Settlement Laws, the Bengal Tenancy Act, and the Survey Act V (B.C.) of 1875. They may also be followed, so far as they are applicable, in surveys under the other Regulations and Acts mentioned.

2. "Survey" includes "measurement" and, in operations under Act V (B.C.) 1875, "identification of boundaries and all other operations antecedent to and connected with survey."

3. Settlement-surveys are ordinarily classed as follows:—

(i) Traverse surveys or surveys of the boundaries of villages or estates.

(ii) Cadastral surveys or surveys of fields within villages or estates.

4. A survey of the boundaries of villages and of certain internal details was completed for the greater portion of Bengal more than 50 years ago. It is called the Revenue survey. The original maps at present in the office of the Surveyor-General of India, are about to be transferred to the Bengal Drawing Office. Copies of them are kept in the district offices. The traverse surveys now in progress are usually based on the Revenue Survey.

CHAPTER II.

Demarcation of village boundaries and identification of lands.

5. There are ordinarily three processes connected with the survey of boundaries:—

(i) Demarcation.

(ii) Traverse survey.

(iii) Survey of the actual boundaries.

The first process is necessary for the identification of lands and for the demarcation of boundaries in the presence of all the parties concerned. As a map of every village was prepared at the time of the Revenue Survey, there will ordinarily be no difficulty in demarcating villages through the agency of the zamindars, and no separate establishment is required for the work.

The second process is mainly technical, and consists of measuring straight lines, called traverse lines, from station to station fixed as far as possible at convenient intervals on the boundary of the village, and recording the bearings of such lines. These lines are plotted on a skeleton map, and are the basis of the cadastral survey map.

The third process, the survey of the actual boundary, is made during cadastral survey. The amin bases his work on the stations marked at the time of traverse survey, and on the traverse lines plotted on the skeleton map supplied to him.

6. For the purpose of settlements of land revenue, or for the preparation of a record of rights, the village according to the Revenue Survey is, as far as possible and with the modifications described in the rule 7 below, to be taken as the unit of survey. When there has not been a previous Revenue Survey of villages, the limits of villages will be laid down in accordance with the orders of the Board of Revenue.

7. The following rules, which form part of Chapter VI of the Government Rules published under the Bengal Tenancy Act, have the force of law:—

“(a) In the demarcation of village boundaries the area contained within the exterior boundaries of the village maps of the Revenue Survey shall be preserved as far as possible as the unit of survey and record.

“(b) Where there is no dispute the boundaries of the village according to possession shall be followed for the purposes of map and record.

“(c) Where there is a dispute as to a village, the Revenue Officer shall decide the dispute under the Bengal Survey Act, 1875 (Bengal Act V of 1875).

“(d) Where the Settlement Officer is of opinion that the village maps prepared at the Revenue Survey are not suitable as the unit of survey and record, he shall issue notice of the inquiry to all parties concerned in the manner prescribed, and after such local enquiry in the presence of the parties as he may consider necessary, shall determine the area to be included in the village. He shall then submit his proceedings to the Board through such superior authorities as the Board may prescribe; and such area as the Board may, after such enquiry as may be deemed necessary, declare to be included in a village shall be adopted as the unit of survey and record of rights.

Provided that in all cases where the Revenue Survey village is not adopted as the unit of survey, the Settlement Officer shall draw up a statement, in such form as the Board may prescribe, showing the areas adopted as the unit of survey as compared with the areas contained in the village maps of the Revenue Survey; and such statement shall be filed in the Collector's Office.

"(e) Where no Revenue Survey maps have been prepared, the Revenue officer appointed under the designation of Settlement officer shall issue notice to all parties concerned in the manner prescribed, and after such local enquiry in the presence of the parties as he may consider necessary, shall determine the area to be included in the village. He shall then submit the proceedings to the Collector, and such area as the Collector, after such further enquiry as he deems necessary, and with the sanction of the Board of Revenue, by general or special order, declares to constitute a village shall be adopted as the unit of survey and record of rights."

The following procedure is prescribed in the case of surveys of considerable areas:—

8. The demarcation of boundaries and identification of lands is to be carried out with all publicity, and the voluntary co-operation of owners and occupants of lands is to be sought.

9. As soon as a notification under the Survey Act is issued for any district, it is the duty of the District Officer to ascertain from the Superintendent, Provincial Surveys, the date by which demarcation of villages in each thana should be completed. On receipt of this information, the District Officer is instructed to direct village chaukidars to jointly demarcate all the village trijunction points, and, for each such point, to sign a *joint* report that this has been done. These reports should be signed by the daffadar (or daffadars, if the village concerned fall in more than one circle) who should also be present at the demarcation.

10. The officer in charge of the boundary survey, whether the survey be professional or not, is to be vested with the powers of an Assistant Superintendent of Survey under Act V (B.O.) of 1875, unless he is already vested with the power of a Revenue Officer or Superintendent of Survey.

11. He should issue a general notice, in form A (*vide* Rule 33), to the zamindars or their agents, and to all occupants of lands calling upon them to demarcate the boundaries of their villages by the erection, on or before a certain date, of mounds of earth, or other marks, on all the principal bends of the boundary, or to attend and point out their boundaries and render aid to the surveyor on a date to be subsequently fixed.

12. The form of notice varies slightly according as the survey is proceeding under the Bengal Tenancy Act or under the Survey Act alone, and it is only in the latter case that the issue of the notification is obligatory in accordance with section 5. The same procedure as to notifications is, however, to be followed as far as possible in the case of surveys under the Bengal Tenancy Act, as under the Survey Act.

13. The notices in form A are to be issued not less than a month before the survey party is expected to visit the village. The notices shall be served by chaukidars, and the receipt of service shall be countersigned by daffadars.

14. Such notices are general, and if they are not obeyed, it will be necessary to issue a special notice under section 7 of Act V (B.C.) of 1875 in form B (*vide* Rule 34) on individuals by name, so that if the parties still refuse to attend, fines can be inflicted under section 51 of the said Act.

Special notice.

15. Before surveying lands in the possession of, or contiguous to the property of, any public authority, or of any Railway Company or of any other public body, care should be taken to serve a special notice upon such authority, company, or body. Such notice should indicate the probable date of survey, and should ask for the deputation of an agent to point out the correct boundaries of such lands.

Special notice to public authority, company, or body.

16. The general notice in proceedings under the Bengal Survey Act is to be served in accordance with section 5 of that Act. If the proceedings are under the Bengal Tenancy Act, it may be served on the landlords personally or upon the patwaris and other headmen of the village. The signatures of the person receiving the notice are to be taken on the duplicate, and if it is not possible to serve notices personally, or to obtain signatures, a copy of the notice is to be posted in the landlord's village office, if there be one, or in a conspicuous place in the village in the presence of at least two residents of the village. If a village be uninhabited, a notice may, under Rule 40 (c) of the Government Rules under the Bengal Tenancy Act, be served in any inhabited village in which the tenants of the uninhabited village are believed to reside.

Method of service.

17. The provisions of the law as to the method of service of notices on individuals under section 7 of the Bengal Survey Act are contained in section 48 of the Act.

18. If the village boundaries are not demarcated by the zamindars or their agents, the surveyor who is deputed to fix survey stations on the boundaries previous to traverse survey, or to make a traverse survey of the boundary, will make stations on the boundary according to possession, acting on information obtained from the zamindar or his local agents, and having regard to the boundary according to the Revenue Survey, or, in diara tracts, the Diara Survey of 1864-67. A copy of the Revenue or Diara Survey map of each village is to be supplied to him for this purpose. This map will also enable him to follow the boundary, when information cannot be obtained, without delay. He should in all cases select the true trijunction points of villages for traverse stations.

Manner of demarcation.

19. For each village a brief report regarding the demarcation is to be prepared by the Surveyor or other officer. In the case referred to in the preceding rule he should, where he finds the boundary undemarcated, submit a special report.

Reports of demarcation Officers.

20. In such cases the officer in charge of the traverse survey may either accept the stations fixed by the Surveyor for the purpose of the traverse survey of the village boundary, or he may take special steps under section 7 of the Bengal Survey Act to get the boundary demarcated with the help of the zamindars of that and the adjacent villages.

Procedure of Traverse Survey Officers.

21. Where the boundary is disputed at the time of demarcation or otherwise, both boundaries claimed must be demarcated, and traversed.

Boundary disputes.

22. The officer in charge of the boundary survey should be provided with a sketch map of the total area to be surveyed, and an index list of villages with their Revenue Survey numbers to distinguish them. He should also have copies of the 4-inch Revenue Survey maps.

As the notice in form A is general and is not addressed to individuals, it is not necessary for the officer in charge of the survey to be supplied with a list of proprietors and their local agents. If the special notice in form B has to be served on individuals, the surveyor can ascertain their names and residences, or those of their agents, when he visits the villages.

23. The demarcation and traverse survey of villages should be completed before the cadastral survey begins, so as to enable the village skeleton maps to be prepared.

The demarcation of the village boundary is necessary primarily to enable the traverse survey to be carried out. If the cadastral survey is delayed, it will be necessary to repair the demarcation marks, and owners and occupants of lands may be called upon to do so.

24. The procedure described in the foregoing paragraphs is to be followed in all cases. If the area under survey is small, the demarcation will be carried out by amins under the supervision of a Revenue Officer or the Deputy Collector, who will see that the area to be surveyed is properly identified before cadastral survey commences. If disconnected villages are under demarcation, the notice in form C should also be served on the landlords of neighbouring villages. If only a part of a village is to be surveyed, the whole village need not be demarcated.

25. The provisions of section 44 of the Bengal Survey Act, regarding the relaying of boundaries, should be carefully observed, especially in cases where the interests of Government may be affected.

Changes in boundary affecting Government.

26. In case of any survey, which includes any portion of the boundary of a cantonment, the boundary should be marked by a series of straight lines drawn from one cantonment boundary pillar to the next, unless official instructions are given to the contrary by notification in the local gazette. Before such a survey is finally accepted, it should be communicated to the Military authorities for information and scrutiny.

Demarcation of (ii) cantonment boundaries.

27. In every case of dispute in which the interests of Government are involved, a report should be submitted to the Collector of the district and an application should be made for any papers which may throw light on the case. Such papers should, where possible, be made over in original and without delay.

Disputes affecting Government interests.

28. When the settlement proceedings are under Regulation VII of 1822, patwaris, gumastas, and other persons by whom village accounts have been kept may be summoned to give such information as may be necessary in order to enable the Settlement Officer, or his subordinates duly authorised in that behalf, to identify the lands liable to settlement of land revenue. If they refuse to attend, or neglect to produce papers, or to swear to their correctness when produced, or if they decline generally to give evidence respecting them, they become liable to punishment under sections 23 and 25, Regulation XII of 1817; section 12, Regulation II of 1819; and clause 2, section 19, Regulation VII of 1822.

The Settlement Officer may also summon the proprietor or farmer of the estate under settlement, or may require him to procure the attendance of the village officers. Omission or refusal to comply with such requisition renders the proprietor or farmer liable to a daily fine, under clause 3, section 13, Regulation II of 1819; clause 2, section 19, Regulation VII of 1822, and Act XX of 1848. When the fine imposed under this Rule amounts to more than Rs. 500, a special report should be submitted to the Commissioner.

29. Alluvial accretions which cannot be identified with lands contained in any village according to the Revenue Survey or the Diara Survey of 1864-1867 should be specially reported for the orders of the Board of Revenue.

Demarcation of (iv) alluvions.

30. In tracts on the banks of changing rivers, the demarcation should be made as soon as the water recedes, and the survey and other proceedings should follow as soon as possible.

31. When two adjoining districts are under survey, the Superintendents of Survey of the two districts should, in communication with each other, come to an agreement in regard to the common boundary to be followed; and care should thenceforward be taken that the officers on either side do not transgress those limits in demarcating the villages of their respective districts. In the event of a district coming under survey after the completion of the survey of an adjoining district the Superintendent should respect the boundary of the district first surveyed, unless it be inconsistent with the topographical features of the country, in which case he should report the case for orders. But if the parties concerned are agreed that the boundary laid down at the former survey is incorrect, as regards actual possession, and consent to the specific correction proposed either by themselves or by the Survey Officer, the necessity for altering the district boundaries should be reported to the Commissioner of the Division.

(v) District boundaries.

32. Where the district boundary is also the boundary of the

(v) Provincial boundaries.

Province the orders of the Board, and of Government, if necessary, should be taken, through the Commissioner of the division, as to the line to be followed, and all difficulties that may be experienced in carrying out the orders received should be reported to the Commissioner for orders.

33.

FORM A.—Proclamation.

To

All occupants of lands in village , pargana district , and to all persons dwelling in villages whose boundaries are conterminous with this village, and to all persons employed on, or connected with, the management of, or otherwise interested in, such lands, it is hereby notified and proclaimed that

* Note.—These words are to be omitted where such sanction is not necessary.

the Lieutenant-Governor [*with the previous sanction of the Governor-General in Council] under the powers conferred upon him by section 101 (1) of the Bengal Tenancy Act (or section 3 of the Survey Act, as the case may be) has directed that a survey shall be made [and a record-of-rights

shall be prepared off] This is, therefore, to give notice that the demarcation and survey of the land in the pargana above stated will commence on the

, and you are hereby called upon to demarcate the boundaries of your village by erecting mounds of earth at all the bends of the boundary on or before the and to attend, either personally or by agent, on the Survey and Settlement Officers at such times and places as shall be stated hereafter in special proclamation to be published in the villages in which the lands to be surveyed lie. You will then point out the boundaries of all lands belonging to your respective estates, tenures and holdings, and render such aid as may be necessary in setting up or repairing such marks as may be required; and you will afford such assistance and information as may be required of you for the purposes of the Act. You should therefore be prepared to point out all the lands mentioned therein as belonging to your estates, tenures and holdings in each village of which you are in actual possession; and also be prepared to give the necessary information in respect of those which are no longer in your possession, or if you have any lands not in the Collector's list, to give all necessary information in respect of them.

34.

FORM B.

Special notice under section 7 of the Bengal Survey Act.

Special notice in continuation of notice in Form A.

To agent on behalf of the proprietor of estate No. , village , pargana , district , proprietor or manager of

It is hereby notified, in continuation of the general proclamation, dated the _____, that (the undersigned or whoever may be sent) will proceed to the demarcation of the under-mentioned village on _____, and this is to give you notice that you must attend personally or by agent at _____, for the purpose of pointing out the boundaries of all lands belonging to your estate situated in such village, and of rendering all aid that may be necessary in setting up or repairing boundary marks, and of affording any assistance or information which may be needed.

In case you fail to comply with the requisition you shall be liable to fine under the provisions of section 51 of the Bengal Survey Act.

NOTE.—If this notice is issued to a tenant to require his attendance to point out his lands or give other information, it must be altered accordingly.

This notice may, in the first place, be issued generally on the proprietors or occupiers of land in the village.

35.

FORM C.

Notice to neighbouring Landlords.

Notice issued by

dated

190 .

To

The landlords and tenants of the undermentioned village.

NOTICE is hereby given that amin _____ has been deputed to demarcate mauza _____, pargana _____, district _____, and the undermentioned villages which border on it, and appear to be in your possession. You are required, therefore, to appear before the amin to point out the boundary of your respective mauzas, estates and tenures. The amin has no authority to decide any matter in dispute, but merely to ascertain what is disputed. Matters in dispute will be settled hereafter by the Settlement Officers. Possession cannot be disturbed by the amin's demarcation. Marks put down by the amin should not be removed. Herein fail not.

CHAPTER III.

Traverse Survey of Boundaries.

36. The work of boundary or traverse survey, as explained in the

Object of Traverse Survey.

note at the head of the preceding chapter, is mainly technical. Its object is to prepare skeleton maps of villages for the purpose of field survey. Zamindars and occupants of lands should be informed that the traverse survey does not necessarily indicate the boundary, which will be accurately surveyed at the time of cadastral survey. The Surveyor is to prepare a note showing any special circumstances requiring orders which may arise during survey.

The following general rules apply to traverse survey of boundaries, whether the surveys are professional or non-professional.

37. The surveyor deputed to carry out the traverse survey of boundaries should utilize the true trijunction points as theodolite traverse stations, and should follow as closely as possible the real boundaries of villages which he will find demarcated. If they are not demarcated, he must act in accordance with rule 18.

38. He will fix stations on the boundaries, and connect these stations by straight lines.

The stations should be so selected that offsets from the lines connecting them to the real boundaries will not, as a rule, exceed 2½ chains.

No traverse line should ordinarily exceed 40 chains in length.

Traverse stations should never be made within a cultivated field.

39. When the village is of large extent, in addition to the series of traverse lines along the boundary, the surveyor must also run similar lines with intermediate stations, through the village, at distances not exceeding 40 chains apart. These are called sub-traverses.

40. The Surveyor must run sub-traverses—

- (a) Around and through large village sites.
- (b) Along the edge of jungle blocks, at a distance of about one to one and-a-half chains from the commencement of the jungle.
- (c) Along the basis of hills or ranges of hills. It is not sufficient to erect traverse stations on the crests or sloping sides of such ranges. Where jungle blocks adjoin hills it is not necessary to traverse them separately.
- (d) Through, round or near isolated patches of cultivation, situated in jungle or other difficult tracts.
- (e) On both banks of all large rivers.

41. When the plotting of the sheets is being done, care should be taken to provide, as far as possible, a line of stations along or near the margins of sheets.

42. In large villages enquiries should be made as to the boundaries of *tolas* or other sub-divisions of the village. These, if they form

large compact areas, should be demarcated, and the boundaries traversed for the convenience of the cadastral survey and record writing.

43. A few prominent and isolated objects, such as temples, and G. T. stations, should be connected by intersection or sub-traverses and

plotted on the field sheets.

Procedure for boundary survey by a non-professional party.

44. When the survey is non-professional, the boundary or traverse survey may be made either with the plane-table or with the prismatic compass. Stations may also be fixed along the boundary by intersection (by the use of the sight-rule) from

Method of traverse survey by plane table, &c.

the ends of a base line carefully measured within the village and from subsidiary points similarly fixed therefrom. The plane table is, however, the best instrument for the work of boundary survey.

45. Work should commence, if possible, from a true trijunction point on the north-west of the village or from some point on the boundary, which should be carefully marked by a strong bamboo or wooden peg, so as to be easily discovered by the cadastral amin, and should proceed in a south-west direction round the village.

46. Two other points, either on the actual boundary, or as near as possible to it, will then be taken on either side of the starting-point and at a convenient distance, not exceeding 20 to 30 chains, from it, and will be marked by flags.

47. The amin will be provided with a plane-table and a ruled sheet for the map. The plane-table will be adjusted over the first point, to the magnetic north by the magnetic compass, so as to have the ruled lines approximately parallel with the north line. A point on the sheet will be chosen towards the north-west corner of the sheet in such a position as to admit of the village coming conveniently within the sheet.

48. From this point, when the plane-table has been fixed, the sight rule will be aligned on the back flag (*i.e.*, the flag to the north-east), and a line will be drawn of indefinite length. The sight-rule will then be moved round to intersect the forward flag (*i.e.*, the flag to the south-west), and another line will be drawn. This line will give the angle at the first point. The distances from this point to the back and forward flag will be measured by the chain, and the position of the station, previously marked on the ground, is thus fixed on the sheet.

49. The plane-table will then be moved on to the forward station, and the back flag will be sent to the next station ahead. The plane-table will be fixed at the new station by aligning the sight-rule on the line to the first station, and then moving round till it is aligned with a flag placed at the next station. The plane-table will then be clamped and the line drawn and distance measured, as before. The work will thus proceed round the village. For further instructions on the use of the sight vane, see Chapter XI.

50. After fixing the magnetic north at the first station, it is not absolutely necessary to use the magnetic needle again, as the measured line and back flag will give the proper direction; but it is desirable to do so at each station as a check.

51. The scale of survey should ordinarily be 16 inches to the mile, and the chain used should be Gunter's chain. In preparing the skeleton map, it is not necessary to offset to the actual boundary of the village, but the lines of the skeleton plot should keep as near as possible to the boundary. No points should be more than 20 or 30 chains apart and care should be taken to mark all the points, whence observations are taken, with such marks as can be readily found when the cadastral survey is being made.

52. This method of boundary survey, though not as accurate as the theodolite survey, will, if carefully carried out, be found sufficient for surveys of small areas. There is, however, the danger that the surveyor when returning to the starting point, will find that he is unable to close up his work correctly. If this is the case, he should go over the work again, but in the reverse direction, beginning from the original starting point and following the lines round until the error is eliminated.

53. It may happen that the whole of a village cannot be plotted in one sheet. In that case the surveyor will proceed with the plot on one sheet so far as he can. He will then measure a straight line across the village, being careful to keep actually to the straight line on the ground, which is drawn on the paper, with the use of flags and the sight-rule, and making marks as he goes along on the ground, and on boundaries of fields to show the cadastral area where the village is divided on the plot. Such divisions should, if possible, be made along one of the ruled lines of the sheet. If it is not possible to clear a straight line on the ground across the village, the traverse stations may be placed zigzag on or near the margin of the sheets.

54. Paper for sheets will be supplied, divided into squares on the 16-inch-to-a-mile scale, containing 2½ acres to the square inch. This paper should be stretched tightly over the plane-table and pasted on to its edges with a thin strip of cloth. The paper, on drying, will then stretch smoothly over the surface.

55. The officer in charge of the survey, or some responsible subordinate, should check at least 20 per cent. of the angles and distances on boundary surveys, made according to the method described above. No field-book should be used.

56. Another method of survey is with the prismatic compass and field-book; but this should be seldom adopted, as it is very liable to error, it being almost impossible to read the bearings or angles with sufficient accuracy or to plot them on the paper. If the prismatic compass is used, the plotting should be done by some person other than the surveyor, to prevent the possibility of falsification.

CHAPTER IV.

Boundary marks

57. Boundary marks are either temporary or permanent.

58. Temporary marks, such as heaps of earth, bamboo-pegs or other marks, are, at the time of demarcation, to be erected at every bend and turn of the boundary. The zamindars and head raiyats should be called upon to erect them, and in case they fail to comply, such marks should in the first instance be erected and paid for by Government.

59. Under section 14 of the Bengal Survey Act, occupants of land can be required to maintain such marks until the survey operations have been concluded, or until permanent boundary marks have been erected.

Their maintenance.

60. Permanent boundary marks may be erected under sections 15 and 46 of the Bengal Survey Act.

Permanent marks.

61. In proceedings under the Bengal Tenancy Act the following rule regulates the erection of permanent boundary marks, and has the

Rules for erection.

force of law :—

“Boundary pillars of a permanent nature shall be erected at every point where the boundaries of three or more villages meet, and may be erected wherever the Revenue Officer considers it necessary to define by pillars the boundaries of estates or tenures, or of lands which have been the subject of dispute.” *Vide* Rule 44 of the Government Rules under the Bengal Tenancy Act in Appendix A.

If the proceedings are under the Bengal Survey Act, the notice in Form D (*vide* Rule 70) is to be issued under section 15 of that Act.

62. A report as to the nature of the permanent pillars or marks to be erected is to be submitted to the Director of Land Records for sanction, or to the Commissioner where surveys or settlements are not under the control of the Director.

Selection of permanent marks.

63. Permanent boundary marks are usually of the two following descriptions:—

Boundary marks to which the rules apply.

(i) triangular stones erected to show the trijunction points of the true

boundary lines of three villages;

(ii) square stones erected for special purpose.

64. The triangular stones should be 2 feet long and should have their tops cut into triangular prisms of 5 inch sides. They may be had of The Bengal Stone Company at Mirzapur at the rate of annas 7½ each, for a full waggon load, i.e., 1,000 to 1,300 pieces, or of annas 12½ each for smaller supply. The square stones should be 2 feet long and should have their tops cut into a cube of 5 inches sides. These stones may be had of the same Company at the same rates as the triangular stones.

Size and shape of stones.

In districts for which sandstone marks are not suitable on account of their liability to be misappropriated, the Settlement Officer should arrange, if possible, for the supply of laterite or other stones not so liable.

65. Of the two kinds of stones mentioned in the last rule, stones of the first kind are embedded by the

Location of each kind of mark.

Traverse Surveyors, in the ordinary course of their duty, at each true trijunction point. Where this is impossible, as, for example, when the true trijunction point is in the bed of a stream, the traverse trijunction points should be located as near as possible to the true trijunction point. Stones of the second kind should only be embedded when, for special reasons, the Settlement Officer so directs. (See Rule 69 (9) to (11).

66. (a) No boundary marks should ordinarily be buried on roads, railways or canal embankments. If, however, it is unavoidable to do so, the stones must be buried in the soil-flush with the ground level.

On roads, etc.
 NOTE.—It will be found convenient to dig holes or short trenches round pillars or other boundary marks, so as to enable them to be more usually identified, heaping the excavated earth for the marks.

(b) In the case of disputes as to trijunction points, permanent boundary marks are not to be erected until the dispute has been decided. On disputed trijunctions.

Pegs or other temporary marks must be used and report submitted.

67. All traverse stations other than true trijunction points are to be marked with 2 inches clay cylinders locally made or with an overburnt vitrified brick. These should be buried nearly levelled with the ground and covered with small mounds of earth.

68. The permanent boundary marks at trijunctions, or on boundaries which have been disputed, are to be shown, with their appropriate symbols, on the village maps and traces. Such other permanent marks erected at traverse stations, as may be found necessary, are also to be shown on the maps and traces.

69. The following rules have been laid down for the erection and inspection of permanent boundary marks at the traverse and cadastral stages of settlement :—

A. At Traverse Survey.

(1) Traverse Surveyors should be instructed to utilize the trijunction stone as a theodolite station.

The true trijunction mark to be the theodolite station.
 The attention of the traverse party will ordinarily be confined to the erection of stones of the first kind. It will seldom be necessary for the Settlement Officer to direct that stones of the second kind should be erected at this stage.

(2) The responsibility of the traverse survey party for the erection

Responsibility of traverse party as to stones and receipts.
 of trijunction marks will cease when the traverse plots and the zamindars' and tenants' receipts for the marks have been handed over to the Settlement Officer. If, however, for any reason it is found impossible to embed a trijunction mark at a true trijunction, the mark receipt must show clearly, in a foot-note, why a mark could not be embedded at the time of traverse survey at the true trijunction. The traverse officer will attach all the mark receipts appertaining to one village to the traverse plot of that village when sending it to the Settlement Officer, and he must therefore arrange that a separate form be used by each Line-clearer or Traverser for the portion of each village boundary dealt with by that Line-clearer or Traverser; he need not, however, prepare duplicate receipts for portions of the boundary common to continuous villages.

B. At Cadastral Survey and Khanapuri.

(3) It will be the duty of the Assistant Settlement Officer carrying out the cadastral survey to verify the position of all stones erected by the

ties of Cadastral Officers.

traverse party, to re-erect them if they have disappeared, and to erect such as have been omitted and to correct the position of stones which have not been erected at the true trijunction points. The Assistant Settlement Officer will ordinarily delegate to his Inspectors the immediate duties prescribed in this paragraph. He as well as his Kanungos or Head Inspectors should, however, closely supervise and check the work of the Inspectors in this respect.

- (4) Each Inspector will prepare a mujmili of his halka to be called the trijunction mujmili, which will be kept for this purpose only.

Each Inspector will be responsible for examining the trijunctions of all villages to the north and west situated on the periphery of his halka, and of all other villages of his halka where no other Inspector's halka adjoins.

- (5) As soon as the survey of a village is finished, and all boundary disputes are decided, the Inspector will during his rounds of inspection inspect the true trijunction points of the villages. If he finds that the Traverse Surveyors have embedded the trijunction stone at the true trijunction point he will merely note the fact in his trijunction mujmili putting in the symbol Δ , to denote that he has made the necessary examination. In case he finds that the Traverse Surveyors have not embedded the stone at the true trijunction point, he will remove it to the true trijunction point, noting its correct position in his mujmili thus Δ . He will also note in the map the approximate position from which he has removed it by circle in red ink thus \bigcirc . He will also replace the stone so removed by a mark the same or similar to that used for marking traverse stations in the district. If the true trijunction mark is in a rock or is inaccessible, the Inspector will merely note the fact in the mujmili. If the true trijunction is in a stream or river bed, the stones will be embedded on both banks of the stream or river, care being taken to embed the stones as close as the nature of the ground permits to the points from which the boundaries of the villages start.

- (6) The Inspector should at the time of verifying trijunction and other boundary marks take receipts on printed forms from the chaukidars and headmen (if any) of the villages concerned, and these receipts should be kept with the trijunction mujmili. Before khana-puri begins, the Settlement Officer should apply to the District Officer for the issue of orders through the Thana Officers requiring chaukidars to be present at verification and to give receipts for the stones. The object of taking these receipts is to ensure that stones will not disappear before responsibility has been finally fixed for them by the Collector under the rules for the maintenance of boundary marks contained in the Settlement Manual.

- (7) The Inspector will make over his trijunction mujmili and the receipts for the stones to the Assistant Settlement Officer of his circle at the end of the season. The Assistant Settlement Officer will make

them over to the Assistant Settlement Officer in charge, head-quarters, who will, in time, send them to the Settlement Office.

(8) Officers deciding boundary disputes should pay particular attention to the question of whether trijunction stones must be moved as a consequence of the decision, and such stones should be rechecked as in rule 69 (3) above, if possible. If this is impossible, a note should be added in the register of stones to the effect that the stone could not be rechecked, and the attention of the Attestation Officer specially drawn to it. This rule also applies to decisions on appeal.

The Settlement Officer should give instructions for the erection of square stones when he considers that the decision of a village boundary dispute, or of an important internal boundary dispute, will not otherwise be observed by the parties concerned. Due provision should be made for the recovery of the cost in all such cases.

(9) When a portion of a village has been surveyed, the Settlement Officer should ordinarily direct that square stones will be embedded to separate the surveyed portion from the unsurveyed portion.

(10) Square stones erected under the last two rules should ordinarily be placed at each bend in the boundary. In the case of long straight lines, they should be placed at intervals of 220 yards. When, however, there has been no dispute, the number of square stones can be much less than in cases where there has been a dispute; the stones should be sufficient to enable an amin to relay the boundary by the help of the cadastral map.

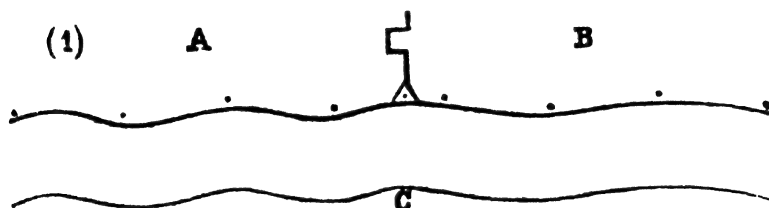
(11) The Assistant Settlement Officer will, on the completion of the survey, sign a certificate that stones have been erected at all true village trijunction points and square stones have been erected wherever the Settlement Officer has so directed.

(12) Where there has been no traverse survey, no triangular stones will be used. The Assistant Settlement Officer should, however, if the Settlement Officer so directs, embed a square stone, wherever possible, at each true trijunction point. In this case the certificate of the Assistant Settlement Officer will be modified accordingly.

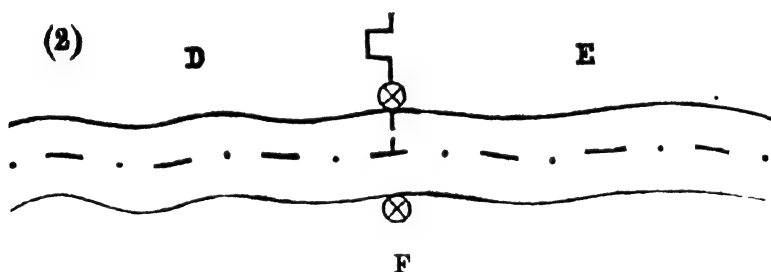
(13) The Assistant Settlement Officer will see that all boundary stones are marked upon the village sheets by the prescribed conventional signs, i.e., Δ \square respectively. The tracers which are supplied to the Settlement Officer for the purposes of the attestation camps will show the boundary stones as in the original sheets.

(14) The Settlement Officer will have prepared before the attestation season, a special mujmili map for each thana on the scale of 2" to the mile. This map will show as accurately as possible the true boundary of each village. When the boundary runs along the banks or bed of a stream, both banks of the stream should be marked in the map. The position of all boundary stones, triangular or square, should be shown in this map by the conventional signs marked in the diagram—

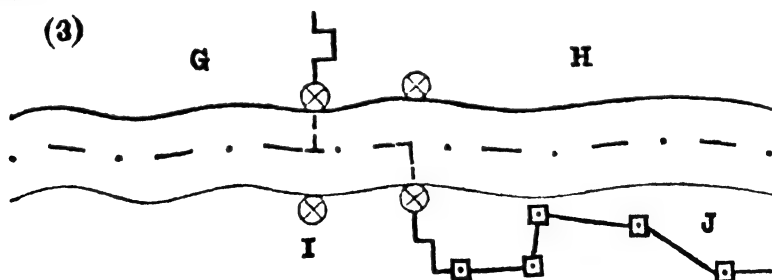
To illustrate Rule 69 (14).



In this case the whole bed of the river is in C, and the trijunction is marked *in situ*.



In this case the true trijunction is in the bed of the river, a stone is placed on each bank, and the conventional sign \times is recorded in the maps.



A more complicated case of (2) above, but also showing four special marks embedded by order of the Settlement Officer.

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FORM D.

*Notice of erection of Boundary Marks under the Bengal Survey Act,
section 15.*

To

1. Under section 15 of Act V (B.C.) of 1875, notice is hereby given to you that, for the purposes of the survey now being carried out in the district of _____ it has been decided that (*specify number*) permanent boundary marks should be erected on the boundaries of the villages, estates, and tenures noted in the margin. The marks are to be of (stone, masonry or other materials *as the case may be*) and of the dimensions mentioned below, and are estimated to cost _____ each.

2. As the marks are within your estate or tenure, you are liable wholly (or in part) for the cost of erection. If therefore you are willing to undertake the erection of the aforesaid marks, and within one week notify to this office that you engage to complete the work within _____ the work will be entrusted to you. If you fail to comply with this requisition, the marks will be erected under the orders of the Superintendent, and the cost recovered from you under the provisions of the aforesaid Act.

CHAPTER V.

Organization of the Field Staff for Cadastral Survey and Khanapuri.

71. The area to be surveyed will be divided into circles, the average size of which will be 100 to 150 square miles. Each circle will be in the charge of an Assistant Settlement Officer. He will have under him five to seven Inspectors, who will each supervise the work of about ten amins. A separate *halka* or subdivision of the circle will be assigned to each Inspector. The Assistant Settlement Officer will also be assisted by a Head Inspector or *Karungo*.

Each Assistant Settlement Officer will be in charge of the whole of the operations in his circle up to the completion of *khanapuri*. He will have powers to transfer amins from village to village and *halka* to *halka*, as the necessities of the work require.

In the large settlements there will usually be one or more covenanted Assistant Settlement Officers in charge, who will supervise the work of the Circle Officers, and be responsible for making necessary transfers from circle to circle, so that the field staff may be kept working at full swing, and that all avoidable idleness may be prevented. There may also be one or more Assistant Settlement Officers in charge of the Head-quarters Cadastral Camp.

72. All difficulties whether relating to record writing, survey or other matters should be noted in the special "Note for orders" form and referred by Assistant Settlement Officers to the covenanted Assistant Settlement Officer in charge, or to the Assistant Settlement Officer in charge of the Cadastral Camp.

The latter will ordinarily be an officer with considerable experience in survey. All notes for orders on purely survey matters such as passing of maps, missing traverse stations, serious defects in the maps and any special difficulties encountered in the survey of villages should be referred by Circle Officers direct to him for his opinion.

All notes for orders on matters connected with record-writing, the progress of the work, the management, distribution and conduct of the settlement should be sent by Circle Officers direct to the covenanted Assistant Settlement Officer in charge.

73. The Assistant Settlement Officer will have his head-quarters at some central place in his circle, accessible to his amins, a post office and the cadastral camp head-quarters. He will have to attend at his head-quarters on the 10th and 24th of each month, in order to submit his fortnightly returns, and should usually be camping in the survey burland for a few days before and after the 24th. At his head-quarters he will ordinarily have the following establishment:—

- (1) One vernacular muharrir capable of inking up maps,
- (2) Two peons,
- (3) One dak peon.

and the following equipment:—

- One rauti 12' × 12'.
- One table.
- One chair.
- One office box.
- Two stationery boxes.
- Six round tins for storage of maps.
- A supply of forms and stationery.
- A supply of medicine.
- A supply of amins' requisites for the circle.
- One mujmili of the circle.

74. The Assistant Settlement Officer will also have the following

Field Establishment. field establishment:—

- (1) One clerk having a knowledge of English.
- (2) Three peons.

And the following field equipment:—

- One shikaripal.
- One rauti 12' × 12'.
- One necessary tent.
- One office box.
- One stationery box.
- One table.
- Two chairs.
- One mujmili.
- One round tin for storage of maps, with lock and key.
- One copy of the Survey Act.
- One copy of the Bengal Tenancy Act or local Tenancy Act, where the Bengal Tenancy Act is not in force.
- One copy of the Survey Manual.
- One copy of the attestation rules.

Of this register columns 1 and 2 will be filled up before going into camp. Subsequently, when a report is received from the Inspector that an amin's work is nearing completion, the date of probable completion will be entered in pencil; so also, when a sheet is despatched by the Assistant Settlement Officer for an amin, the date of probable commencement will be entered in pencil. Each month on the 24th, the Assistant Settlement Officer will thoroughly scrutinise each Inspector's account in this register with the Inspector and the amins present before him. He will at the same time distribute a sufficient number of sheets or records to give the amins employment for the next 14 days.

On the 10th he will similarly distribute the work for the next 14 days, as far as possible. The Assistant Settlement Officer must remember that any idleness on the part of the amins not only reduces the amins' earning, but imposes an additional expense on Government in the increased cost of field establishment; and an Assistant Settlement Officer will be judged to a very great extent by his success in preventing avoidable idleness. The clerk in writing up the register will leave sufficient space opposite each sheet for the names of three amins, to allow for the transfer of a sheet in case of sickness, etc. The kharapuri entries will be made not by sheets but by villages.

77. In case of illness extending beyond a week, the Assistant Settlement Officer of the circle must appoint a substitute, who will ordinarily draw the pay of the post in which he acts. The covenanted Assistant Settlement Officer in charge may, in special cases, allow full pay for a maximum period of one month to members of the staff incapacitated temporarily on account of illness.

In case permanent vacancies occur, the Assistant Settlement Officer will select substitutes from his staff to fill the places. In both cases, the appointment must be confirmed by the covenanted Assistant Settlement Officer in charge, who has the power of making direct appointments, if he thinks necessary. The covenanted Assistant Settlement Officer in charge may also readjust the pay of the post.

78. Punishments may consist of—(1) fine, (2) suspension, (3) dismissal, (4) dismissal with prescription. Offences against the Penal Code will be punished under that Code.

No officer below the rank of an Assistant Settlement Officer will be permitted to order any punishment. Assistant Settlement Officers may fine up to Rs. 5, and will send a report of all such fines with a brief note of the circumstances to the head-quarters of the cadastral camp. If an offence requires more severe punishment, the Assistant Settlement Officer will suspend the amin and at once report all the facts to the covenanted Assistant Settlement Officer in charge. The suspended amin will on suspension proceed to the Assistant Settlement Officer's head-quarters, and wait there till the orders of the covenanted Assistant Settlement Officer in charge are received.

A covenanted Assistant Settlement Officer in charge may impose any punishment specified above.

A report of all fines must be sent fortnightly to the Assistant Settlement Officer in charge, head-quarters, in the prescribed form (*vide* paragraph 81). The Assistant Settlement Officers in charge, head-quarters, when making inspections of cadastral survey, are empowered to fine Head Inspectors, Inspectors, and amins up to Rs. 5, and may suspend them in case of grave misconduct. They will report all fines to the Assistant Settlement Officer in charge, who will pass orders in the case.

Appeals will lie from the orders of all Assistant Settlement Officers against all fines imposed during inspection of cadastral survey to the covenanted Assistant Settlement Officer in charge; in case the original order has been passed by the covenanted Assistant Settlement Officer in charge, the appeal will lie to the Settlement Officer. No further appeals will be allowed: but the Settlement Officer may revise all decisions.

The Assistant Settlement Officer in charge, head-quarters, may inflict any fine on his office subordinates. Appeals will then lie direct to the Settlement Officer.

79. The rules for indenting for mathematical instruments and store are given in Appendix B. All such

Provision of equipment.

indents should be sent through the Commissioner and the Director of Land Records, who will consider whether instruments are available from any other survey party.

Indents should be submitted so as to reach the Director's office at least three months before the commencement of the survey.

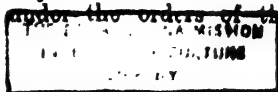
The rules for the distribution of instruments, etc., to Inspectors, Amins and others are contained in Chapter XIX below, and a specimen of the security bond to be taken from them is given in Rule 560.

80. At the end of the field season, the Assistant Settlement Officer in charge of each circle will

Confidential reports and classification of amins, etc.

prepare a confidential report on the work done by his Kanungo or Head Inspector, Inspector's tour clerk and muharir. He will note on their general conduct, and whether they are fit for their posts or not. He will then classify all amins who worked in the circle. There will be three classes for both Survey and *khanapuri*. In case an amin has done no *khanapuri*, the fact will be noted. If an amin has been found incompetent at both Survey and *khanapuri*, the fact will be also noted. Each amin's number should be given as well as his name.

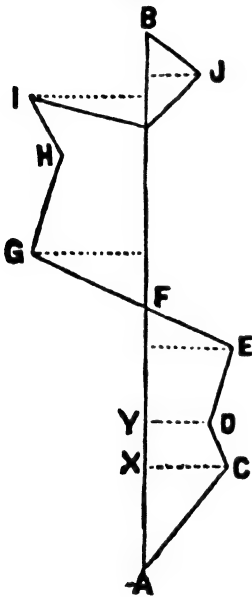
The Assistant Settlement Officer will send his confidential reports and classification register to the covenanted Assistant Settlement Officer in charge, who will have the names arranged alphabetically, and the remarks and classification entered in registers kept for the purpose. The arrangement and the entries should be done by an Assistant Settlement Officer; and the registers and reports will not be sent to the office. They should be sent, when complete, to the Settlement Officer. The promotion of amins and Inspectors will largely depend on the classification and the reports. Assistant Settlement Officers will not give their subordinates certificates or testimonials as to character or capacity. These will be obtained when required from the head office, under the orders of the Settlement Officer.



83. The system of detailed survey is as follows :—

The survey of the village boundary is first completed by means of *offsets*, taken with the optical square. The village is then cut up into quadrilateral figures, across the sides of which sub-lines are run. The distances of all important bends in field boundaries, and of field corners from these sub-lines are also fixed by means of offsets, and the result plotted direct on to the 16-inch sheet.

Fig. 1



A B = Traverse line.
A, C, D, E, F, G, H = village boundary.
F = A katan.
CX, DY, = offset distances.

end of the line. A second man is placed with a flag at the point to which the offset has to be taken. A third man, usually the amin, takes the optical square, and moves backward or forward, until the reflection of the flag pole held by the second man as seen in the glass is in a direct line with the flag pole held by the first man. This will be the required point. Its distance from the starting point of the line is noted on the map, and the offset when measured on the ground is also plotted.

84. An offset is the perpendicular distance from a traverse line, side of a quadrilateral or sub-lines, to all boundary bends, field corners, or other important points, the position of which it is necessary to fix. Offsets are taken by means of the optical square, the use of which is explained below. The amin plots the offsets direct on to the 16 inch sheets by means of the compass and scale. He then joins the *katans* or points at which field or village boundaries are intersected by the chain lines, and the points offsetted to, as in figure 1. He thus gets an exact representation of a village boundary or field boundary, as the case may be.

85. In measuring offsets of greater length than one chain, the Gunter's chain should be used. In case of offsets one chain or less, a bamboo pole will suffice. The pole is 20 links in length. Each link is marked off by a circle cut on the pole. The 5th, 10th and 15th links are marked by a specially broad circle. The pole should be perfectly straight.

86. The optical square is used in taking offsets to find the point in the line of the amin's advance, to which a field corner, point in a boundary bend or other required point is exactly perpendicular. For this purpose, a man with a flag is placed at the

87.* It occasionally happens that an optical square gets out of order. An intelligent amin will notice this at once. The optical square can, however, be easily tested by any amin, and it is important that he should do so frequently. To test its correctness, the amin will first fix the point in the line of advance from which any offset is to be measured in the usual way. He will then reverse the line of advance, and proceed to take the same offset moving backward and forward along the line, until the reflection of the flag pole at the point to which the offset is to be taken is in a line with the flag pole at the starting-point of the line. If he finds that the latter point does not coincide with the former, he may presume that the optical square is out of order. It should in that case be sent to the headquarters of the cadastral camp.

88. As soon as the boundary of a village is completed, the amin will proceed to cut up the sheet into quadrilaterals. For this purpose, he will run straight lines from traverse station to traverse station, or from intermediate points selected by him on traverse lines to traverse stations, or to other selected points on traverse lines. The sides of the quadrilaterals may vary from 10 to 15 chains in length. Quadrilaterals of which the sides are greater should be reduced in size, additional line being run across them for the purpose. The amin should begin at the narrowest part of the village in order to minimise the chances of error in his measurements. As he proceeds the amin will first show the sides of the quadrilaterals and the points at which field boundaries cross the lines (*katans*) with their distances from the starting-points, on the rough sketch called the *khaka*. He will also mark the quadrilateral stations and the *katans* on the ground for subsequent use. He will transfer each side of a quadrilateral as he completes it from the *khaka* to the 16-inch sheet, taking care to see that the measurements on the ground agree with the corresponding measurements taken by scale on the sheet within the prescribed limits of error. Errors of one link in two chains may be passed. In difficult country, a larger limit of error may be allowed, but the amin should report such cases to the Inspector. The amin should in all cases distribute the error. The amin will not be permitted to begin the detailed survey (except in case of boundary disputes) until he has cut up a sheet into quadrilaterals completely. If, however, a part of a sheet is divided off completely by a sub-traverse line, the detailed survey of this portion may be done, before the quadrilaterals of the remaining portion are completed.

89. Errors within the permissible limit should be distributed as follows:—
Distribution of errors. in the following examples:—

- (a) In a line of 33·50 chains, an error of 15 links is found. As the total length is nearer to 30 than 40, measure off 3·50 chains backwards from the closing point, divide the remainder of the line into three equal parts, each of which will be considered to be 10 chains. The error is distributed along the line of 30 chains. All subsequent measurements for offsets or *katans* should be taken from the nearest nominal 10 chains distance.

- (b) In a line of 38·50 chains, an error of 15 links is found. As the total length is nearer to 40 than 30, produce the line on the map to a further distance 1·50 chains. Divide the total length of line into four equal parts and proceed as in (a).

If the error is considerable, but is allowed to pass, it is advisable to still further divide the nominal 10-chain lengths into halves, so that each five chain length will receive its due proportion of the error. Even when there is no discrepancy, the lines should be divided into 10 chain lengths, so that in all subsequent plotting the compasses will never be stretched beyond 10 chains.

90. Owing to the existence of dense jungle or for other reasons,

Triangulation.

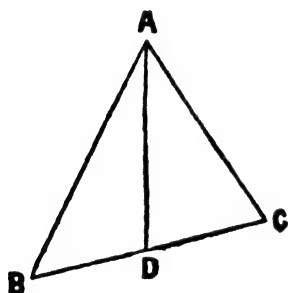


Fig. II

it may not be possible in all cases to out up the sheet into quadrilaterals. In such cases, the amin should triangulate with the chain. He will fix all points by at least three tie lines. For instance (see Fig. II), suppose it is required to fix the position of the point A on the map. The amin will first measure the distance of the point from any selected point B, the position of which is fixed on the map, and on the ground. With B as centre and the distance B A as radius, he will describe an arc of a circle. He will then select similarly another fixed

point C and measure the distance C A. With C as centre and the distance C A as radius, he will describe an arc of a circle. The point at which the arcs intersect will be the correct position of the point A on the map.

To test the accuracy of the work, the amin will measure the distance of a third tie line A D, and compare the distance as measured on the ground with the distance taken by scale on the map. If they agree, the plotting has been done correctly. The triangle A B C should, as nearly as possible, be equilateral.

All triangulation lines should be shown on the *khaka* with their measurements. The practice of running single lines with the sight vane, and building up detailed survey on them, is strictly prohibited.

91. When the quadrilaterals are completed, the amin will mark

Sub-lines.

the *merh katans* on the sides of the quadrilaterals. From these *katans* he will start sub-lines on which to work in the detailed survey. He will plot the field corners, boundary bends, etc., by taking offsets from the sub-lines, and proceed in this way till the survey of the village is completed. Sub-lines should be run judiciously, so as to secure as far as possible that the offsets may not be greater than one chain. In the case of long and narrow fields, sub-lines should be run across the field boundaries, in order that all important bends may be shown in the map.

A point obtained by an offset should never be used as the starting or closing point of a sub-line.

92. In rough or jungle country, where correct chaining is difficult, it will be often found necessary to use the sight vane to establish new stations.

The use of the sight vane.

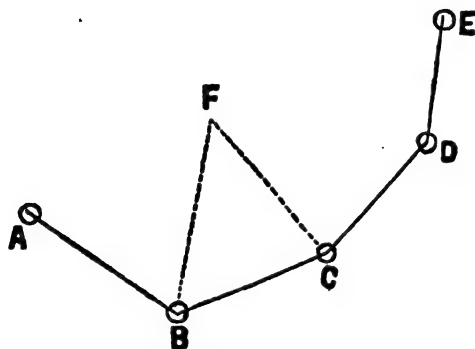


Fig. III

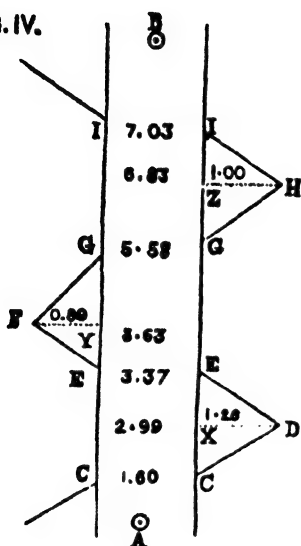
Suppose it is required to fix on the map the position of a point F (see Fig. III). The points A, B, C, D, E are traverse stations. Place a flag at F, and also flags at A and C, and the plane table at B, taking care that it is in horizontal position. Place the sight vane along the edge of the traverse line BC on the sheet, and move the table until the sight vane intersects the flag at C. When this is

done, clamp the table and place the sight vane similarly along the edge of the line BA. If the table has been correctly set, the sight vane will intersect the flag at A. The process should be continued till it is found that the sight vane aligned along the *same* sides of the traverse lines BA and BC exactly intersect the flags at A and C. When this is secured, place the sight vane on the sheet at the point B, keeping it in position by means of a pin; align it along the direction BF, moving it about until it intersects the flag at F. Draw a line along the sight rule in the direction of BF. Then proceed to the point C and repeat the same process, showing the direction of the line CF also on the sheet. The point at which the two lines cut is the required point F. The table should be brought to D and set as before. The sight vane aligned along the line DE on the sheet should intersect the flag at F, if the point F has been fixed correctly. Another test consists in running a line from the point F to any known point in the traverse line. Its length measured on the ground should exactly agree with its length taken by scale in the sheet, if the work is correct.

93. Missing traverse stations are also located *on the ground* by means of the sight vane. The plane table is set in the same manner as before, and the sight vane is aligned along the traverse line, at the end of which is the traverse station which is to be located on the ground. A man is set forward with a flag in the direction of the missing station. He is made to move about until the sight vane intersects his flag. The distance of the missing station from the point of observation as shown by scale is then measured in the direction of the flag, and the required point is thus fixed to the ground. Its correctness should be tested by an intersection from an adjoining traverse station.

94. All amins must learn how to write a field book neatly and correctly. A

FIG. IV.



Field book. the boundary survey need not be written; but the amin will be called upon to write the field books of all independent or final *partals* done by him.

A field book is generally prepared in the form Fig. IV. The space AB represents traverse lines, sub-lines, or *partal* lines, along which the amin is moving. The points C, E, G, I are the *katana*. Their distances from the starting point are noted as in the figure. The dotted lines DX, FY, HZ are the offset distances. Field corners, bends, or other points are shown on the right or left of the vertical lines, according to their position on the ground with their offset measurements. The survey can be plotted from the field book on to the sheet, or a trace may be made, as

required.

95. The chains usually employed for measuring distances in cadastral surveys measure 22 yards in length.

Testing the chain.

They are called Gunter's chains. They are divided into 100 links, each tenth division being marked with a special mark or pendant. These chains are liable to slight variations in length, and should therefore be tested constantly while in work.

Every chain should be tested before issue at the head-quarters of the cadastral camp against standard bars kept for the purpose. If the chain is found to be short, it will generally be due to the fact that some of the links have become bent. These should be straightened. It may sometimes be necessary to shorten a link. In any case, care should be taken that the distances from the 50th link to either end of the chain are equal.

96. A standard line should be pegged out on level ground in each village before the amin begins his survey. He should compare his chain

Standard line.

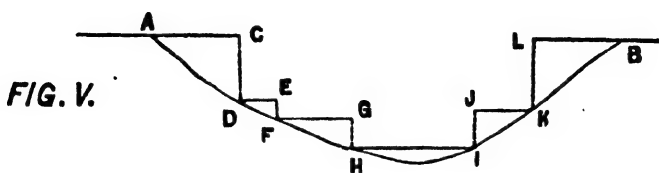
daily with it before going out to work. Inspecting officers, especially inspectors, should test the amin's chain and see that he is observing his rule.

97. Care should be taken to ensure correct chaining, and that the chain gives horizontal and not merely surface measurements. It should always be kept taut during chaining. When going up or down steep

Correct chaining.

inclines the amin will find it necessary to resort to the process called "cutting the chain."

Thus, suppose the amin wants to measure the distance across a steep

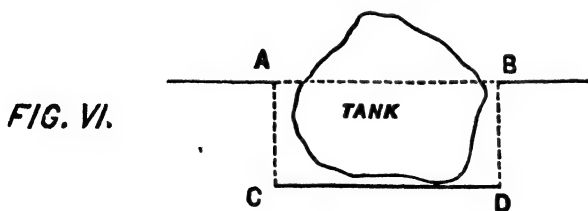


incline A B. The man who drags the chain is made to advance some five or ten

links beyond the point A to C. The chain is held horizontal and a pebble dropped vertically from C through the chain handle. Suppose the distance to C from the last full chain length is 60 links, the amin or back chainman now comes forward and places the 60th link at the point where the pebble fell at D. The forward chainman proceeds farther down the incline and holding the chain horizontally in the position D E, again drops a pebble at F. The process is continued until the whole distance is measured. In moving up the incline the process is reversed, the back chainman raising the chain and dropping the pebbles, while the forward chainman marks the distances on the ground. The sum of the lines A C, D E, F G, H I, J K, and L B is evidently the horizontal distance between A and B and this distance has been taken on the chain.

Sometimes owing to the existence of broken country, jungle or other obstacles, it is not possible for the chainman to so align his flags, that the one towards which he is working is always visible from any point in the line of advance. In these cases, intermediate flags should be aligned with great care, so that one forward and one back flag will be always visible.

98. When the chain is too short to be stretched across tanks or streams through which it is not possible for the chainman to drag the chain, long ropes may be used instead. The length of the rope should then be compared with the chain. In case a rope cannot be stretched across, the distance may be obtained by taking offsets with the optical square



as in figure VI from the points A and B. The length of the line A C being made equal to the length of the line B D the line C D = A B. The line

C D being measured on the ground, its length is equal to the distance from A to B, including the inaccessible portion.

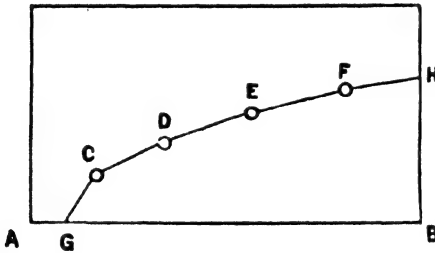
99. When a village map consists of more than one sheet, the

The survey of margins of sheets.

amin will show all details that fall within the margin of the sheet on which he is working, in that sheet. To do this, it will be necessary to mark on the ground the exact points which correspond with the lines on the margins of the adjoining sheets. If there be subtraverse lines, running along or across the margins or near them, no difficulty will be experienced. If, however, the subtraverse lines are situated at a distance, the following procedure should be adopted:—

Suppose A B to be the margin of a sheet, and O D E F stations within it (see fig. VII). Draw the line CG in the direction of the

FIG. VII.



nearest fixed station on the adjoining sheet, after placing the plane table in position mark the point G on the ground, align the sight vane along GC, after placing the plane table in position. Next align it along GB and proceed along the line GB, making suitable stations for quadrilaterals, until the distance corresponding to GB is reached. Then mark the point B on the ground. Then proceed to the point F. Draw a line FH in the direction of the nearest traverse station. Place the table in position at F again and align along FH, mark the point H on the ground. Place the table in position at H, and align the sight vane along HB. Proceed as before, until the point B is reached. If the point corresponds in direction and distance with the point arrived at from G, the work may be considered as correct. If not, the process must be repeated till the points agree. The amin can then make his quadrilaterals with the help of the stations fixed along the margins.

100. An independent survey of the outer periphery of the season's

Double survey of the outer periphery.

area will be made. The Assistant Settlement Officer of the circle will depute an amin for this purpose, giving him the necessary prick off. Inspectors will, under his orders, reconcile all discrepancies between the survey and the survey of village boundaries by actual examination on the spot. The resulting boundary will ordinarily be regarded as final. Assistant Settlement Officers will be responsible that the independent survey is done promptly, and that all necessary corrections in the boundaries have been made before the end of the field season.

101. The maps should be kept at the Circle Officer's head-quarters

Storage of maps.

in round tins or *chongas*. Holes should be made in the ground and the *chongas* put into them, standing vertically. Fine sand should then be put round the edges. The maps will be in charge of the muharriir, who will examine them daily in order to see that no damage is being done.

Maps should never be folded or creased. They must be kept either flat or rolled. If a map is sent through the post, it should be placed on a roller and packed carefully.

CHAPTER VII.

GENERAL RULES FOR SURVEY.

102. When the cadastral amin arrives at a village, his first duty will be to serve notice E on the zamindar and the headman of the village, taking their signatures or thumb impressions on the back of the notice. He returns the notice, when served, to the head-quarters of his circle, where it will be kept until it is filed with the record after completion of *khanapuri*. He will also post another copy of notice E in some conspicuous place in the village. The amin will also show the *parwana* authorising him to survey the village to the zamindar and headman, and also take their signatures or thumb impressions on it, in token of having done so.

103. The amin will then without undue delay proceed to survey the boundary of the village. He will ask the headman of the village to supply three coolies, who will render necessary aid during the survey. He will also require the presence of the headman or some of the principal villagers and the zamindar's agent, and also the representative of the adjoining village, during the boundary survey, to point out the boundaries. 10,634

104. The amin will commence his boundary survey from some well known trijunction point. He will proceed along the traverse lines, plotting in the village boundaries by means of offsets, taken with the optical square. No field book need be kept. The distances from traverse station to traverse station should be measured, and the measurements compared with the plotting, on the sheet. Differences of one link in two chains may be disregarded, but larger discrepancies should be reported to the Inspector. In case traverse stations are found missing, the fact should be reported to the Inspector. The amin will, however, when necessary relay the stations with the sight vane, by means of intersections from adjoining stations.

105. In case the amin discovers that a boundary dispute exists, he will proceed to survey it without delay, before completing the survey of the village boundary. For this purpose he will call on the parties to demarcate their claims at once, if this has not been done, at the same time sending a report to the Inspector of the *halka*, informing him of the existence of the dispute. The amin will survey the boundaries of the disputed area and the fields within it, and will then prepare the *khanapuri* record in the prescribed form. He will send the record when complete to the Inspector. He will inform the neighbouring amin that he has surveyed the disputed area. All such disputes will be surveyed by one amin only; in cases of doubt, as to

who should do the survey, the Assistant Settlement Officer will pass orders.

106. When all boundary disputes have been dealt with as above

Cadastral survey.

and the boundary surveyed, the amin will commence the survey of the sheet, and complete it as soon as possible. Ten days before the date of completion, he will send a report to the Inspector, informing him that the survey will be finished on a fixed date.

107. Before the commencement of the field season, amins will be

Inking of the maps.

tested as to their capacity to ink up maps properly. The officer in charge of the head-quarters cadastral camp, who will usually hold the examination, will give certificates to these amins who are found competent. Those amins who do not obtain certificates will not be permitted to ink up maps, and a deduction will be made from their earnings, until they obtain the necessary certificate. During the field season on the 24th of each month, the officer in charge of the circle will hold similar examinations, and will issue certificates to those amins who have failed to qualify previously, but who have since become proficient. As soon as possible, after the passing of the map, it should be inked up. This should be done by the amin, if he has obtained a certificate. If he has not, the inking will be done by the Assistant Settlement Officer's tour clerk, by an Inspector or by another amin. In all cases, the maps, after being inked up, will be returned to the circle head-quarters. The Assistant Settlement Officer will keep a register showing the names of the persons to whom the maps are given for inking up, with the date of issue and the date of return. The Assistant Settlement Officer will inspect the register frequently, to see that the inking up is not unduly delayed. All maps should be completely inked up before they are given out for *khanapuri*, except (a) boundary dispute blocks which have not been *tarmimed* [see rule 159 (b)], in the cases referred to in rules 137 and 160. Village boundaries should be left in pencil, until the Inspector does the comparison. A specimen for inking up will be given to each Assistant Settlement Officer at the commencement of the season. The lines should be firm, continuous and unbroken. They should all be of the same thickness and drawn with freshly made, very black ink. The ink in use should be rubbed up constantly with cork or other similar substance. Unless these instructions are carried out, the map will not reproduce well.

An alternative system is to appoint a draughtsman, who will remain at the head-quarters of each circle. As the maps are passed from final *partial*, they will be sent to him. He will ink them in without delay, taking special care to ink in properly the specified conventional signs (see rule 112).

108. The amin will encircle all village sites, including blocks of

Village sites.

homestead lands, with a dotted line in pencil. The dotted line will not be inked till recess. *Kutch* houses need not be surveyed. Their position may be shown by faint pencil hatchures, but these will not be inked in. In very close villages a survey on the 32 or 64-inch scale may be necessary. The amin will bring the fact to the notice of the officer in

charge of the circle, who will pass orders. In case a survey on a large scale is ordered, it will be done in the margin of the sheet. The amin will give a reference in pencil, e.g., B, *tola Rampur* scale $32'' = 1$ mile. The reference will not be inked in till recess.

Homestead lands (*bari*) will be measured as separate fields. The house and courtyard will be measured as one field, if enclosed within one boundary. *Pucka* houses will be surveyed accurately in position.

109. When a stream or river forms the boundary of a village, the amin on the right bank will survey it, from one high bank to the other. The amin on the left bank will survey the left bank only. The name of the stream or river and the direction of its flow will be noted on the map in pencil, as also the fact, whether the boundary is midstream or on one bank.

110. Quadrilateral stations should be marked on the ground as circles 2 to 4 feet in diameter, points to which offsets are taken as circles 6 inches in diameter, and points at which chain lines intersect field boundaries (*katans*) as narrow straight outs. No quadrilateral stations should be made in a cultivated field.

111. The amin will show the direction of the adjacent village boundaries on the map, by a line starting at a distance of one chain from the true trijunction and prolonged to a distance of five chains. The direction of the *thoka* line is determined by the last portion of the boundary of the adjacent villages without a bend before the trijunction point is reached.

112. The following items would be surveyed in position:—Roads, railway lines, large footpaths, mile stones, telegraph posts, *pucka* bridges, irrigation marks, temples, tombs, wells, *pucka* buildings, large isolated trees, and other conspicuous objects. The amin will show all these items with their appropriate conventional signs in pencil. The Inspector or draughtsman at head-quarters of the circle will ink in the conventional signs carefully, as soon as the map is passed from final *partal*.

113. Offsets of more than $2\frac{1}{2}$ chains must not be taken. Points situated at greater distances from the line of advance should be fixed by triangulation.

114. Railway lines and their fences should be surveyed accurately. All masonry pillars, level crossings, etc., should be surveyed in position. The amin will note the appropriate conventional signs which should be inked in by the Inspector or draughtsman at head-quarters when the sheet is passed. Red flags should never be placed on or near the railway or its embankments.

115. The amin will enter in the *khaka* the approximate area of the sheet, and all adjoining village names.

116. Whenever large blocks of jungle are found, the amin will enquire whether any portion is cultivated. He will survey all cultivated portions in their correct positions using the sight vane when

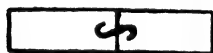
necessary. He will also survey correctly any large rivers or roads that run through the block.

117. When doing the detailed survey, the amin will survey all fields. A field is a plot or contiguous plots of the same class of land held

in the same right and under the same landlord by the same tenant, or group of tenants holding jointly, in the same tenancy. If a group of tenants, holding one tenancy jointly, cultivate separately, the lands cultivated by one member must be surveyed separately from those cultivated by another. A portion of an area which would otherwise be considered one field, if found in the occupation of a mortgagee, sub-lessee, or vendee, will be separately surveyed.

The amin is to survey separately every plot which is pointed out to him as a separate field, if it falls within the above definition. It will often be found that what is pointed out as one field contains several subdivisions by *ails* for purposes of irrigation or cultivation; such subdivisions of fields must not be separately measured. The amin will show on the map in firm lines every field boundary which is on the ground. If there is no field boundary visible on the ground, as in rice lands under water, boundaries will be shown by broken lines.

118. The amin must be careful to ascertain the correct boundaries of all fields during survey. For this purpose, he will question the headman, zamindar's agent, and raiyats who are present. In case, however, mistakes occur, the khanapuri amin will make the necessary alterations. If two or more plots which have been separately surveyed are found to constitute one *field*, they will be bracketed thus



As the survey is made according to present possession, claims to alter existing boundaries should be disregarded.

119. In the survey and khanapuri of municipal areas that are partly agricultural and partly non-agricultural in character, (*vide* rule 295 of the Settlement Manual), the amin should attend to the following instructions:—

- (a) A compact block of bazar or *basti* of purely urban character will be shown on the map as a single plot and given a single khasra number
- (b) No attempt will be made to demarcate the boundaries of estates or patts or tenures within such plots unless instructions to the contrary are issued.
- (c) The plots in question will be described in the khasra as "Municipal blocks" and will be collected together on a single khatian.
- (d) Bastis within the Municipal limits which are surrounded by ordinary raiyati lands and are inhabited principally by the cultivating classes will be surveyed in detail in the ordinary manner.
- (e) The amin or Inspector will apply in all cases of doubt to the Assistant Settlement Officer who will decide which system is to be followed.

120. The amin is entitled to receive assistance from the Inspector, if necessary, in taking out the margins of sheets, relaying missing traverse stations, surveying village sites, and in completing the quadrilaterals. In case any special difficulties arise, he will report them to the Inspector, who is bound to render the required assistance.

Assistance to amins.

121. *Care of the maps*

(a) The amin must keep his maps clean and neat. To ensure this he will, when working, place a piece of paper on the map underneath his hand. He will also place a large sheet of paper on the table under the map. Maps should not be folded or creased

(b) Erasures with the knife are strictly prohibited.

(c) Ink spots and greaso stains are particularly injurious. When they are found on the map, the amin will be fined. The amin will initial (in pencil) all ink spots and stains caused by him. He will be responsible for ink spots and stains found on the map, during the time when it is in his possession. The Assistant Settlement Officer's tour clerk will examine the maps, when they are returned after inking up. In case he finds any spots or stains not initialled, he will report to the Assistant Settlement Officer. If he fails to do so, he will himself be held responsible. The khanapuri amin will initial all stains caused by himself, and will be held similarly responsible for all such spots and stains found on the map which have not been initialled by anybody, when it is received back by the Assistant Settlement Officer after khanapuri. In case the Inspector is responsible for any stains, the amin will ask him to initial them.

(d) The amin when engaged in khanapuri will not be permitted to carry the map about in his hand. It will be left on the plane table.

(e) A strip of cloth will be pasted on to the edges of the sheets, to a depth of one inch, to enable them to be mounted on to the plane table. But nothing else will be pasted on the back or the face of the sheets.

(f) No entries except in pencil will be made either on the front or back of the sheets by the amin.

122. The amin should take care to do as little injury as possible to standing crops, in chaining. For this purpose, the chain lines should be run as near as possible to the field boundaries.

Injury to crops.

123. When field survey is in progress the amin should give notice

Attendance of parties. to the occupants of the lands in that part of the village in which survey is in progress, but should not cause the attendance of persons until their lands are under survey. The presence of the landlord's agent or other village officer is required during field survey. In case the parties refuse to assist or attend, the amin should submit a report to the Inspector who will report to the Assistant Settlement Officer in charge of the circle. The latter can issue notices under section 7 of the Bengal Survey Act, if necessary, in form B (*vide* Rule 130).

The special notice, form B, should be served on individuals by name, the date and the place at which the attendance is required being stated, in the notice. The date of attendance should be not less than 15 days from the date of service. The notice should be served in the manner prescribed in section 48 of the Bengal Survey Act. In case of disobedience, fines may then be inflicted under section 51 of the same Act.

124. The amin will note in his diary the areas he surveys day

Amin's diary. by day. When the amin is engaged in the survey of quadrilaterals or village boundaries, he will note in his diary the total length of lines surveyed each day in chains and links. The amin will be careful not to overestimate his outturn.

125. The fortnightly returns of work will be filled up carefully by

Fortnightly returns of work. the amin, and will include all work done up to the evening of the 8th and 3rd of each month. The amin will submit his returns through the Inspector on the 9th and 24th.

126. *The equipment of an amin--*

- (1) 1 plane table with tripod.
- (2) 1 plane table cover.
- (3) 1 sight vane.
- (4) 1 chain.
- (5) 10 pins.
- (6) 1 optical square.
- (7) 1 offset scale.
- (8) 1 16-inch scale.
- (9) 1 pair of brass compasses.
- (10) 1 flat ruler.
- (11) 1 pencil HHHH.
- (12) 1 piece of India rubber.
- (13) 1 laggi (to be made by the amin).
- (14) 1 spade (generally supplied by the villagers).
- (15) 3 flags (cloth supplied by the office, poles by the amin).
- (16) 1 piece of Indian ink.

129.

FORM OF PARWANA.

To

Amin.

You are hereby authorized to do the survey and khanapuri of village _____ pargana and directed to keep this parwana with you.

You should prepare and submit the maps, *khasras*, *khatians*, etc, according to the rules and instructions, copies of which have been given to you.

130.

FORM B.

Special notice under section 7 of the Bengal Survey Act.

Special notice in continuation of notice in Form A.

To _____ proprietor or manager
or agent on behalf of the proprietor of estate No. _____, village
_____, pargana _____, district _____

It is hereby notified, in continuation of the general proclamation _____, dated the _____, that (the undersigned or whoever may be sent) will proceed to the demarcation of the undermentioned village on _____; and this is to give you notice that you must attend personally or by agent at _____ for the purpose of pointing out the boundaries of all lands belonging to your estate situated in such village, and of rendering all aid that may be necessary in setting up or repairing boundary marks, and of affording any assistance or information which may be needed.

In case you fail to comply with the requisition, you shall be liable to fine, under the provisions of section 51 of the Bengal Survey Act.

NOTE.—If this notice is issued to a tenant to require his attendance, to point out his lands or give other information, it must be altered accordingly.

This notice may, in the first place, be issued generally on the proprietors or occupiers of land in the village.

131.

FORM E.

Special notice, issued to proprietors and occupiers of land.

Special notice under Bengal Survey Act, No. V of 1875, in continuation of the general proclamation.

To all occupants of land, and to all persons employed or connected with the management of estate.

It is hereby notified, in continuation of general proclamation dated _____, that the undersigned (or whoever may be sent) will proceed to the demarcation of the undermentioned village on or about the date specified below; and this is to give you notice

that you should attend personally or by agent, for the purpose of pointing out the boundaries of all lands belonging to your estate, situated in such village, and for rendering all aid that may be necessary in setting up or repairing boundary marks, and of affording such assistance or information, as may be required of you for the purposes of the Act. You should, therefore, be prepared, from the date of commencement of the demarcation of your estate or village, to supply each amin with at least three coolies; and you are called upon, under sections 5 and 6 of the said Act, to demarcate immediately on receipt of this notice, the boundaries of your village [or estate, as the case may be], by erecting mounds of earth at all bends on this boundary, so that there may not be any loss of time or hindrance to the work. In case no mounds of earth have already been erected, you should drive into the ground, at each bend of the boundary, a bamboo peg of three cubits height, and erect around it a mound of earth, to a height of two cubits.

NOTE.—The words “you should, therefore, three coolies” to be struck out before issue of notice, when inapplicable.

CHAPTER VIII.

Check or Partial of Field Measurements.

132. The measurements of the amins must be tested by check lines, run across the map as plotted. The test consists in observing whether the field boundaries intersected by the lines, and the field corners to which offsets are taken, agree with those shown in the plotted map. There are two kinds of *partial*, viz.—(a) *Personal partial* and (b) *Independent partial*.

(A) *Personal partial.*

133. In *personal partial* the lines are run across the map during the progress of the survey, and discrepancies corrected on the ground. *Personal partial* is done by Assistant Settlement Officers, Kanungoes, Head Inspectors and Inspectors.

134. Assistant Settlement Officers should *partial* or *re-partial* as far as possible one line in every sheet. They should constantly *re-partial* Kanungo's, Head Inspectors, and Inspectors' lines and should show those *re-partials* separately in the fortnightly returns. The object of *re-partial* is not merely to find out whether the Kanungo, Head Inspector, or Inspector has done the *partial*, but also to test if he has done it carefully, and checked and corrected all bends and field corners, situated at a reasonable distance from the line of advance. The quality of *partial* is of more importance than the quantity. In choosing lines for *partial*, the Assistant Settlement Officer must be careful to disregard all suggestions from his subordinates. He should not avoid difficult ground, and should in one village or another of the Inspector's *halka partial* every class of fields. He

should also make enquiries from the villagers when the survey has been going on for some time, whether Inspectors are in the habit of giving *partals* to the amins to do, as this practice is not unknown.

135. The minimum *partal* fixed for Inspectors is 12 chains per 100 acres of survey. If a sheet consists almost entirely or largely of jungle, it will be necessary to *partal* the cultivated portion only. In this case, one or two lines of *partal* may suffice for the sheet; but care should be taken to see that the total amount of Inspector's *partal* for the village or the whole *halka* does not fall below the prescribed minimum. The Inspector must *partal* every amin's work before it amounts to 200 acres. Kanungoes and Head Inspectors will, as far as possible, *partal* or *re-partal* one line in every sheet. The Kanungo and Head Inspector will *re-partal* Inspectors' lines only.

136. (a) All partalling officers will keep a field book of *partal* forms, in which every one of the personal *partals* done during the course of the survey will be entered in *ink*. The field books for each fortnight will be sent to head-quarters with the fortnightly returns. Alongside each *partal* line will be entered neatly in *ink* the following particulars :—

- (i) Name of village and number of sheet..... ..
 - (ii) Name and number of amin..... ..
 - (iii) Name of Inspector..... ..
 - (iv) Date of *partal*..... ..
 - (v) Remarks on the quality of the work..... ..
 - (vi) Signature and designation..... ..
- (b) The conventional signs for *partal* are (all in light cobalt blue ink) :—

- (i) Inspector's..... — — — — —
- (ii) Kanungo's or Head Inspector's — . — . — . — . — . — .
- (iii) Assistant Settlement Officer's — . . — . . — . — .
- (iv) Independent — . . — . . — . — .

The partalling officer will at the time of *partal* show his *partal* line on the amin's sheet in faint blue, with its appropriate conventional signs. He will prolong the line in pencil on the amin's sheet, beyond the boundary, and note there in pencil the length of the line and the date of partalling. He will initial these entries.

He will also mark his line on the *khaka*, in red ink, date and initial it.

- (c) The partalling officer will enter in his field book the conventional signs for *nalas*, roads, isolated trees, and other conspicuous objects occurring in the *partal*; also the figures for class of soil. All entries in the form will be in *ink*.

- (d) In comparing the field-book with map, the total length of the line will first be checked, and then the *katans* and offsets. If the length of the total distance does not correspond exactly within the permissible limit of error (1 link in 2 chains), the error will be distributed. The line will be divided into nominal lengths of 10 chains, as follows :—

Suppose the distance measured on *the ground* is 33·50 chains, and the same line on *the map* measures 33·65 chains, according to scale. There is an error of 15 links to be distributed. Starting from the closing end 3·50 chains are marked off according to scale. The remainder of the line is divided into three equal parts, each of those parts is regarded as 10 chains. When checking the *katans* and offsets, the distances should be taken from the nearest nominal 10 chain divisions. The error of 15 links is thus distributed over the entire line of 30 chains.

- (e) Small errors of, say, 10 links, even if occurring frequently, will not be corrected and the work will be considered good. Errors of, say, 20 links occurring here and there should be corrected. If they occur frequently, the work is unsatisfactory. Errors of over 20 links cannot be passed. In rejecting work the most important point is to discover whether it is a faulty quadrilateral or merely a wrong *katan* used for a sub-line which is to blame. In the latter case, the error will be confined to the *katans* and offsets of that particular sub-line; in the former case it will be of serious extent. To find out the extent of the error, it will be necessary to measure the distances along the sides of the quadrilaterals of the two points between which the sub-line is drawn; and if the error is not thus detected it will be necessary to check the position of the points between which the quadrilateral side which is suspected is drawn. In this way it may be found that only one quadrilateral or one or two sub-lines need revision, and not the whole village.

The partalling officer should never reject the whole sheet, until he is satisfied by actual test that the whole work is bad, and that the errors are not due to mere local mistakes as explained above.

The faulty portion should be carefully rubbed out so as to become invisible. After being re-mapped by the amin, it will be re-partalled by the Inspector.

A field-book of personal *partals* will be prepared, and submitted fortnightly to the head-quarters office with the fortnightly returns.

- (f) The partalling officer should be careful to take up all *offsets*, all corners and important bends situated within a reasonable distance of the *partial* line. He should question the villagers present about the boundaries and classification of fields, in order to find out whether all fields have been separately surveyed. He should also be careful not to accept the amin's guidance about the points from which

offsets should be taken. All offset points are marked on the ground, and in case an amin has omitted any in his plotting he, of course, will not point them out to the partaller. It may thus occur that while the *partial* shows the work to be good, it may really be defective, or carelessly done.

- (g) Ordinarily, *partial* lines will be between 8 and 25 chains in length; a length of 15 or 20 chains is usually a suitable length, but the kind of the ground through which the line runs must be taken into account. Low lands, where cultivation is intense, are, of course, the most difficult to survey correctly, owing to the definition of a field, and should always be *partalled*.

A *partial* line should never start from or end with a point obtained by an offset. The *partial* line need not be contained within one quadrilateral, and there is no objection to *partial* lines crossing each other; but it is sometimes a waste of energy to doubly *partial* one block and leave another without any *partial*.

- (h) As the correctness of the entire survey depends on the quadrilaterals, the following steps should be taken to secure their accuracy:—

(i) The Inspector is required to re-measure on the ground 5 to 10 per cent. of the sides of the quadrilaterals. He will put his initial with date in red ink on each line he has so checked on the *khaka*. If he finds discrepancies he will note his measurements, and make necessary corrections. The Assistant Settlement Officer will re-check as many quadrilateral lines as possible, to test the Inspector's work.

(ii) The Inspector will see that *all* measurements of quadrilateral lines on the *khaka* have been correctly transferred to the 16-inch sheet. He will put his initial with date on the *khaka* in red ink in the centre of the quadrilateral in token of having done so.

(iii) The amin will not be permitted to begin the detailed survey (except in case of boundary disputes), until he has cut up the sheet into quadrilaterals completely. If this is not done, serious errors, which it is difficult to detect by *partials*, tend to accumulate towards the margin of the sheet; and the amin may be tempted to falsify the row of quadrilaterals adjoining the margin in case there are errors, in order that the whole sheet may not be rejected. If, however, a part of a sheet is divided off completely by a sub-traverse line, the detailed survey of this portion may be done before the quadrilaterals for the remaining portion are completed.

(iv) Errors of one link in two chains may be passed. In difficult country, a larger limit of error may be allowed; but the amin should refer such cases to the Inspector. In all cases

the error should be distributed, and inspecting officers should see that such errors are not allowed to remain in one or two quadrilaterals only as is often the case.

(B) *Independent Partial.*

137. In independent *partial* the lines are run across the map after the amin has finished the survey. The map is sent to the Assistant Settlement Officer with the *khaka*. He will note on the *khaka* the lines which he desires should be *partalled*, after scrutinising the map. He may do this *partial* himself, or he may send the *khaka* to the amin to do the *partial*, meantime keeping the map under lock and key. The *partaller* will prepare a field-book, plot it and prepare a trace of the plot. The field book and the trace should be in ink. In case the Assistant Settlement Officer has not prepared the trace himself, he will first compare it with the field-book. He will then compare the trace with the 16-inch map, noting all differences in red ink. He will then either pass the work, if the errors found are passable, or send the map and records of the *partals* to the Assistant Settlement Officer in charge of head-quarters for his opinion as to whether the work should be rejected or not. The record consists of the field-book, *partaller's* report form, and trace.

138. The Assistant Settlement Officer will note the quality of the work in the *challan* which accompanies the final *partial* record in one or other of the following terms:—

(a) Good.

|

(b) Fair.

(c) Bad and rejected.

In making his classification the Assistant Settlement Officer should be guided by the rules contained in paragraph 136 (c) above. In difficult country a larger margin of error may be allowed.

139. It sometimes happens that during the comparison of the trace with the map after independent *partial* it will be found that though for the greater part of the line the survey is good, in one small portion the configuration of the field appears to be wrong. It often happens that this is due to a mistake made by the amin who prepared the field book. The map may be passed, but the Assistant Settlement Officer should encircle the faulty portion, which will not be inked up, with a pencil line, noting at the same time the fact that he has done so in the *partial* trace. The faulty portion will be examined during *khanapuri* by the Inspector, who will, after making necessary corrections, if any, ink up the portion, making a pencil note in the margin that he has checked the survey. An alternative procedure is to send back the *khaka* for re-*partial*, before passing the map.

140. The amount of independent *partial* is at least 12 chains per 100 acres.

Amount of independent *partial*.

141. The Assistant Settlement Officer should scrutinise the map carefully before selecting the lines.

Lines for independent *partial*.

Difficult river boundaries should be frequently given for *partial*. In case the Assistant Settlement Officer has good reasons to suspect the genuineness of any part of the work,

he should either do the *partial* himself or depute a Kanungo, Head Inspector, or Inspector to do it.

The Assistant Settlement Officer should under no circumstances delegate any of the duties connected with final *partial* to any of his subordinates. He should make the comparison of the trace with the map himself to see that the *partial* has been well done, and that all bends and corners situated at a reasonable distance from the line have been taken up and plotted. In case he finds that the *partial* has been carelessly or hurriedly done, he should return the *khaka* to the partaller, who should be made to do the work over again.

142. The duty of passing the maps in final *partial* may be assigned to the Kanungo of the circle with the sanction of the Director of Land Records.

Independent *partial* may be passed by Kanungos.

143. The covenanted Assistant Settlement Officer in charge should, whenever he visits an Assistant Settlement Officer's head-quarters, examine as many *partial* records as possible, to see that all Assistant Settlement Officers adhere strictly to the rules, and that bad work is not being passed. Several of the *partial* traces should be compared with the original maps when possible.

Check of *partial* records.

144. Sometimes it may be advisable to re-survey a small area in order to test the work. This is called block *partial*. The Assistant Settlement Officer in such cases gives the amin or Inspector a prick off, showing the traverse stations adjoining the block. He will show the approximate position of the area to be re-surveyed by encircling it with a blue line in pencil on the *khaka*. The re-survey will be compared with the map.

Block *partial*.

145.

Partial Field-Book Form.

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146.

Challan Khaka.

Name of amin

Name of village

Name of pargana

Name of thana

Sheet No.

Halka No.

Total length of lines

Chains

Links

Fino

Name of Inspector

Partalled by

Date of partal

Date of despatch of khaka

REMARKS

Date of passing the sheet

CHAPTER IX.

Duties of Inspectors, Head Inspectors, and Kanungoes.

147. The rules in this chapter refer mainly to supervision of cadastral survey. The rules relating to supervision of Khanapuri will be found in Chapter XI.

Each Inspector will fix his head-quarters at some central place in the *halka*, and will not change his head-quarters, or leave his *halka* except with the written permission of the Assistant Settlement Officer. He is subordinate to the Assistant Settlement Officer of the Circle in all matters, and will send all communications relating to the progress of the work, etc., to him.

148. The Inspector will be held generally responsible for the progress, as well as the quality of the work done by the amins in his *halka*, both in survey and in khanapuri. He will pay particular attention to secure that the amins keep their maps clean and neat, and free from ink spots and grease stains. He will acquaint himself thoroughly with the rules for amins, and will inspect the maps, on every occasion when he visits an amin, to see that the rules are being adhered to. He will note in the amin's diary, and explain to the amin the nature of such defects and breaches of the rules as come to his notice. If he fails to do so, he will himself be held responsible.

149. In addition to this general supervision, the following particular duties are assigned to him :—

- (i) Checking boundary offsets.
- (ii) Checking and partalling quadrilaterals.
- (iii) Partalling detailed survey.
- (iv) Comparison of village boundaries and sheet margins.
- (v) Preparation of boundary dispute traces and records, and *farmin* of the boundaries.
- (vi) Inking of specified conventional signs.
- (vii) Checking of all *thoka* lines.
- (viii) Erecting village trijunction marks as directed by the Settlement officer.
- (ix) Submitting prescribed returns.

150. The Inspector will check the offsets taken along the village boundaries, of one traverse line in each sheet. He will initial the line so checked on the *khaka* in red ink.

151. The Inspector will remeasure on the ground 5 to 10 per cent. of the sides of the quadrilaterals. He will put his initials with date in red ink on each line he has so checked on the *khaka*. If he finds discrepancies he will note his measurements and make necessary corrections.

152. The Inspector will see that all measurements of quadrilateral lines on the *khaka* have been correctly transferred to the 16-inch sheets. He will put his initials with date on the *khaka* in red ink in the centre of the quadrilateral, in token of having done so.

153. The Inspector will not permit the amin to begin the detailed survey (except in cases of boundary disputes) until the amin has completely cut up the sheet into quadrilaterals. If, however, a part

of a sheet is divided off completely by a sub-traverse line, the detailed survey of this portion may be done before the quadrilaterals for the remaining portion are completed.

154. The Inspector will distribute all errors [see rule 136 (d)].

155. The minimum personal *partial* fixed for Inspectors is 12 chains per 100 acres of survey. If a sheet

Partial of detailed survey. consists almost entirely or largely of jungle, it will be necessary to *partial* the cultivated portion only. In this case, one or two lines of *partial* may suffice for the sheet; but care should be taken to see that the total amount of inspectors' *partial* for the village or the whole *halka* does not fall below the prescribed minimum. The Inspector must *partial* every amin's work, before it amounts to 20 acres. Kanungoes and Head Inspectors will, as far as possible, *partial* or *repartial* one line in every sheet. The Head Inspector will *repartial* Inspectors' lines only.

156. The Kanungo, Head Inspector or Inspector will correct the mistakes found during *partial*. If he considers that the survey is very defective, he will report the matter to the Assistant Settlement Officer who will pass orders.

Kanungoes, Head Inspectors and Inspectors will submit their field-books of personal *partial* to the Assistant Settlement Officer with the other returns on the 10th and 24th of each month.

157. As soon as the common boundary between two villages *Comparison of village boundaries.* included in an Inspector's *halka* has been surveyed, the Inspector will take a trace of the boundary as surveyed by one amin in the tracing book with which each Inspector will be supplied. He will compare this trace with the boundary as surveyed by the second amin, and in case of discrepancies will correct them, after going to the spot and making necessary measurements. He will sign and date the trace in token of having done the comparison. After comparison he will ink in the boundaries in light blue or in black ink, as the Settlement Officer may order.

For the purpose of comparing the common boundaries of adjoining *halkas*, each Inspector will take traces on tracing cloth of the boundaries of his *halka*. Inspector A will send his trace to Inspector B and Inspector B will send his trace to Inspector A. When discrepancies are found to exist, the Inspectors will arrange to go over the ground, and will make necessary corrections. Each Inspector will keep one trace, which should bear the signature of both Inspectors concerned. Inspectors should be careful to compare roads, rivers, and large pathways, where they cross the boundaries of villages. The work of boundary comparison must on no account be delayed.

158. As soon as the Inspector receives a report from an amin *Boundary dispute cases.* that a boundary dispute exists, he will proceed to the spot, as soon as possible, and will see that the amin is doing the survey and *khanapuri*. As soon as they are finished, the Inspector will prepare a duplicate trace of the disputed area on the 16-inch scale in the prescribed form. He will take the signatures of the parties on the traces, and will also himself sign and date them. Duplicate *khassras* of the disputed area will also be prepared by the amin. The Inspector will then send the

traces and *khasras* to the Assistant Settlement Officer. Great importance will be attached to the prompt disposal of the boundary disputes; and if the Inspector is found to have made any undue delay, he will be punished severely. (For detailed rules see Chapter X.)

159. (a) In case the disputed area has been measured in the sheet

of village A, and the whole has been decided to lie in village B, the Inspector will not attempt to transfer the block to the sheet of village B unless there be special orders to the contrary in respect of small areas. Transfers will usually be done in recess. The Inspector will prepare a careful trace of the area, and make it over to the *khanapuri* amin of village B. This trace will be regarded as an additional sheet of village B, and the *khanapuri* will be done on the basis of this trace.

(b) In case a portion only of the disputed area, measured in village A, has been decided to be in village B, the Inspector will, unless some unusual difficulty arises, ink in the correct boundary of village A, taking a trace of the area to be transferred to B, and giving it to the amin for *khanapuri* as in (a).

(c) In case the whole disputed area measured in village A has been decided to belong to village A, the Inspector will, of course, ink in the correct boundaries in the field.

(d) In case the disputed area has been measured in a separate sheet as a disputed block, the sheet will be regarded as an additional sheet of that village to which the largest part of the area has been awarded. As regards the smaller part, the procedure will be as in (a).

160. As soon as the survey of adjoining sheets having a common margin is completed, the Inspector

Margin inked.

should compare the margins, correcting all discrepancies on the spot. It usually happens that one sheet is finished from final *partial* before the adjoining one. A space extending for about an inch from the margin should be left in pencil. The Inspector will ink up this, after making the comparison with the adjoining sheet. The Inspector will sign the sheet near the margin, noting that he has done the comparison.

161. In case it is discovered in recess that the Inspector has signed the traces or the sheet margins, whereas he has not done such comparison, he will be dismissed. In case it is found in recess that he has omitted to make the necessary comparison, through carelessness or mistake, he will be ordered to proceed to the village, to complete the comparison, and will receive no pay for the period during which he is employed on this work.

162. The Inspector will ink in the conventional signs for all items mentioned in rule 112, as soon as the sheets are passed. He will do this carefully, according to the copy of signs in use, which will be supplied to him (*vide* Rule 181).

163. The Inspector will check all *thoka* lines, but will not ink them.

164. The Inspector will attend the head-quarters of the circle on the 16th and 25th of each month. He will submit on these dates the following returns :—

(a) List of villages in which survey has been commenced.

- (b) Inspector's fortnightly return (9th to 23rd, 24th to 8th) [*vide* Rule 178 (b)].
- (c) Amins' fortnightly return (9th to 23rd, 24th to 8th).
- (d) *Goshicara* of amins' fortnightly return (*vide* Rule 179).
- (e) A *mujmili* showing the progress of the work in his *halka*.
- (f) Return of internal disputes (*vide* Rule 180).
- (g) Any other returns ordered by the Settlement Officer.

In addition the Inspector will bring each fortnight his standard chain for necessary adjustment. All Inspectors will check the amins' returns and will sign them in token of having done so.

165. The Inspector will colour his *mujmali* during the progress of his inspection to show the progress of the work. For this purpose he will draw parallel lines in red ink, across the part of the sheet that has been surveyed; when *khanapuri* has commenced, he will show the progress of the work in the *mujmali* by parallel lines drawn at right angles to the former. Lines will be drawn only across that part of the sheet which has been actually completed in either survey or *khanapuri*. Inspectors will colour the *mujmalis* of the Assistant Settlement Officer on the 10th and 24th of each month, and bring them up to date.

166. As soon as an amin finishes the survey of a sheet, the Inspector will send the sheet and *kika* to the Assistant Settlement Officer who will draw on the *kika* the lines for independent *portal*. When the Inspector receives back the *kika*, he will send it to the amin and will see that the latter finishes his *portal* within three days. On receipt of the amin's field-book and plot he will send the trace, *portal* challan form, *khata* and the field-book to the Assistant Settlement Officer.

167. The Inspector will test the amin's chain by comparison with his own whenever he inspects. He will also see that the amin has laid down a standard chain in the village. If the amin has not done so the Inspector will note the fact in the amin's diary.

168. The Inspector will enter the following details in light cobalt blue on the back of every sheet at the left hand top corner:—Name of village, number of sheet, name of amin (both survey and *khanapuri*), *halka* number, name of thana.

169. If an amin is likely to finish the work he has in hand before the next 10th or 24th and the Inspector has not got from the Assistant Settlement Officer any fresh work for that amin, the Inspector must report the case to the Assistant Settlement Officer at once. If he does not do so he will be held responsible for the idleness of the amin. These reports should be very rarely necessary if the fortnightly scrutiny of the progress register is properly carried out (*see* rule 76).

170. The Kanungo, Head Inspector and Inspectors will examine the maps in the field, to see that the amins have not overestimated their outturn.

Over-estimat. of outturn.

171. The Inspector should report at once any matter likely to interfere with the progress of the work, *e.g.*—
Special reports.

- (a) A dispute whether the area is a village or only a *tola* of another village,
- (b) Refusal of villagers to assist in survey.
- (c) Absence of parties without whose presence the work cannot go on.

172. The Inspector will keep a register, in which he will enter the description of all maps, records, etc., sent to the head-quarters of the circle, with the date of despatch. He will send the register to head-quarters with the maps, records, etc. The Assistant Settlement Officer or his tour clerk or muharrir will initial the register in token of receipt, and return it to the Inspector.

The Inspector will give a receipt to amins for maps, *khatians*, *khasras*, and other valuable papers received from them. He will note in his register the date on which he received them from the amin, and will forward them to the head-quarters of the circle without delay.

173. The Inspector will keep a diary in the prescribed form [*vide* Rule 178 (a)].

174. Rules relating to punishment are the same as those laid down in the case of amins.

175. The copy of the Inspectors' rules should be returned to head-quarters at the end of the field season.

176. There will be one Head Inspector or Kanungo in each circle. He will generally assist the Assistant Settlement Officer in the work of the circle, and will bring to his notice all neglect of their duties by Inspectors, such as insufficient or careless partalling, failure to compare village boundaries and sheet margins timely, and other important breaches of the rules by Inspectors or amins. The Head Inspector or Kanungo will also *partal*, as far as possible, one line in every sheet, and should *repartal* Inspectors' lines frequently.

177. *Inspectors' equipments*—

- (1) Two chains (one standard).
- (2) Ten pins.
- (3) One optical square.
- (4) One offset square.
- (5) One sight vane.
- (6) Two scales diagonal (paper), viz.—
16" = 1 mile.
32" = 1 mile.
- (7) One pair of brass compasses.
- (8) One drawing pen.
- (9) One rule flat ebonite, 12".
- (10) One peon's badge.
- (11) One tin *chonga*.

Stationery —

- (12) Two pen-holders.
- (13) Three nibs.

- (14) Two pencils HHH.
- (15) One pencil HB.
- (16) Black and red ink powders.
- (17) Two ink pots.
- (18) One quire country paper.
- (19) Two cakes of red and yellow paint with mixing cup.
- (20) One rubber.
- (21) One cake cobalt blue.
- (22) Tracing cloth and tracing paper (as required).

Forms—

- (23) Abstract of amins' return.
- (24) Amins' fortnightly return of work.
- (25) Inspectors' fortnightly return of work.
- (26) Field books.
- (27) Boundary dispute case *khassa* forms.
- (28) Forms of certificate in boundary dispute cases.
(Numbers 23 to 28 as required).
- (29) One *mujmuli* of the *halka*.
- (30) One specimen copy of conventional signs.
- (31) One copy of the form prescribed for boundary dispute duplicate traces.

178.

(a) *Form of Inspectors' Diary.*

Name of Inspector

Halka No.

Date, month and year.	Name of amin.	Name of village and num- ber of sheet.	Thana.	Area surveyed by amin up to time of inspection.	BOUNDARY LINES CHECKED BY ACTUAL CHAINING.			QUADRILATERALS CHECKED BY ACTUAL CHAINING.		
					Lines.	Chains.	Links.	Lines.	Chains.	Links.
1	2	3	4	5	6	7	8	9	10	11

DAILY TOTAL CHECK OF						SURVEY TESTED BY FIELD BOOK.			DAILY TOTAL OF SURVEY 1881.			Number of plots khana- puried up to date of in- spection.
Boundary lines.			Quadrilateral.									
Lines.	Chains.	Links.	Lines.	Chains.	Links.	Lines.	Chains.	Links.	Lines.	Chains.	Links.	
12	13	14	15	16	17	18	19	20	21	22	23	24

Number of plots checked in khana- puri.	Daily total of check in khana- puri.	COMPARISON OF BOUNDARIES DONE.			Number of plots traced from boundary dispute areas.	INTERNAL DISPUTES CHECKED AFTER DECISION.		REMARKS.
		Number of villages.	Number of sheets.	Number of lines.		Number of cases.	Number of plots.	
25	26	27	28	29	30	31	32	33

179. *Gowara of Amins' Fortnightly Return of work.*

Thana

Name of Inspector

Halka No.

From

To

Serial number.	Amin's number.	Name of amin.	NATURE OF EMPLOYMENT.			SURVEY.					
			Survey.	Khanapuri.	Without work.	Sheets.		Number of fields.	ACRES.		
						In hand.	Completed.		Cultivated.	Jungle and waste.	Area surveyed on the 32" or 64" scale.
1	2	3	4	5	6	7	8	9	10	11	12

KHANAPURI.				INTERNAL DISPUTES.		PARTIAL BY INSPECTOR.				PARTIAL BY KANUNGO OR HEAD INSPECTOR.			
Villages.		Number of fields.	Acres.	Instituted.	Decided.	Survey.			Number of khanapuri plots.	Survey.			Number of khanapuri plots.
In hand.	Completed.					Lines.	Chains.	Links.		Lines.	Chains.	Links.	
13	14	15	16	17	18	19	20	21	22	23	24	25	26

PARTIAL BY ASSISTANT SETTLEMENT OFFICER OR OTHER OFFICER.				FINAL PARTIAL.					REMARKS.
Survey.			Number of khanapuri plots.	Lines.			Blocks.		
Lines.	Chains.	Links.		Lines.	Chains.	Links.	Number of plots.	Acres.	
27	28	29	30	31	32	33	34	35	36

Date.

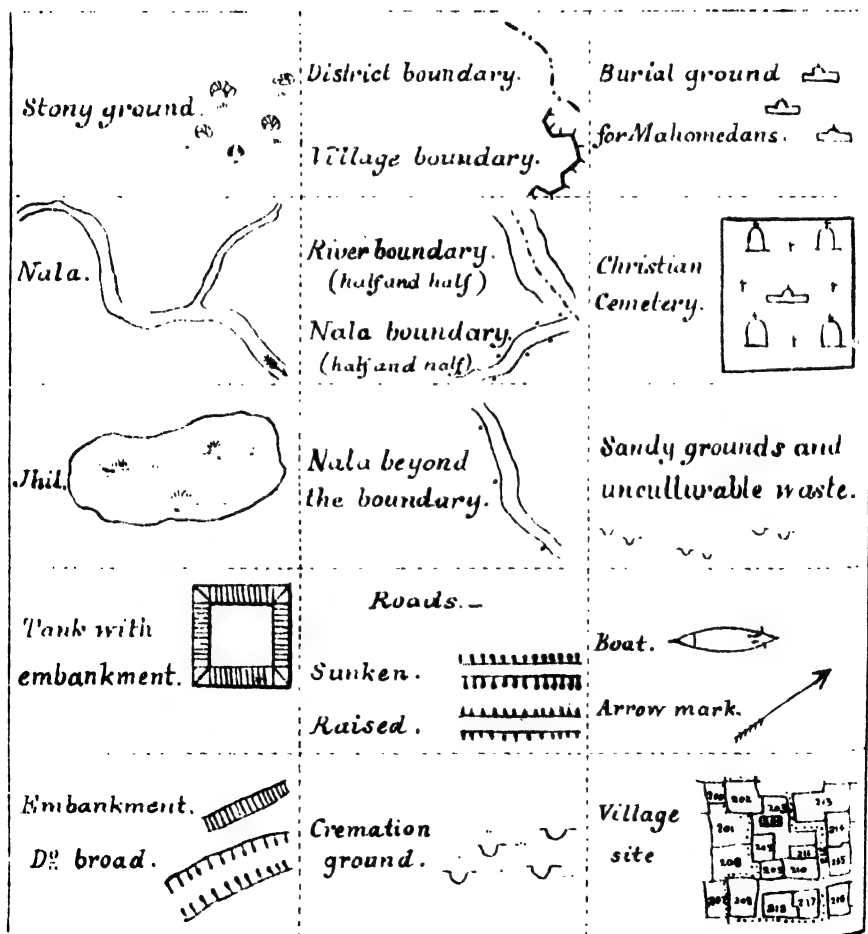
Inspector.

181 (Concld.)

CONVENTIONAL SIGNS

FOR

Notable Objects to be inked in in recess
during mokabila.



CHAPTER X.

Boundary Disputes.

182. All village boundary disputes must be dealt with under Part V of the Bengal Survey Act V (B.O.) of 1875 [see rule 43 (c) of the Bengal Tenancy Act Rules in Appendix A].

183. It is of great importance that village boundary disputes should be settled as soon as possible after they arise. To give effect to the decision in an important village boundary dispute after *khanapuri* of the village has been completed may entail considerable alterations in the records, involving confusion and waste of time. Boundary disputes should therefore be decided summarily by the Revenue Officers engaged in supervising *khanapuri*, and should not be left until attestation.

184. The different boundaries claimed should be marked on the ground with a double line of temporary marks.

185. As soon as the existence of a boundary dispute is known, the amin working in the village will proceed to survey it. He will show the boundaries of all fields within the disputed area. He will also prepare duplicate *khassas* for the disputed area in the prescribed form, according to the statements of the parties [*vide* Rule 218 (a)].

The Inspector will then prepare duplicate traces of the disputed area in the prescribed form on the 16-inch scale, [*vide* Rule 218(b)], and forward the complete record to the Assistant Settlement Officer without delay. The Assistant Settlement Officer will decide the case by virtue of his powers as an Assistant Superintendent of Survey under the Survey Act.

186. Whenever the Assistant Superintendent of Survey in deciding a dispute requires to have the Revenue Survey line shown on the trace he will send the trace to the head-quarters of the Cadastral Camp, where the line will be carefully pentagraphed on to the trace.

187. Village boundary disputes should ordinarily be decided on the spot by the Assistant Superintendent of Survey. A date for the enquiry should be fixed, at which the parties should be required by notice to appear at a place named, personally or by their representatives, and to bring their evidence with them. The amin or Inspector should also attend.

The Assistant Superintendent of Survey will then go over the whole line in dispute, making notes of the names of the persons present and examined, and of the general tenor of the evidence given as to possession. If possible, he should announce his decision on the spot.

188. The Assistant Superintendent of Survey will decide all boundary disputes, unless compromised, to be decided by possession. disputes, unless they are compromised, according to possession.

189. Having determined the boundary, the Assistant Superintendent of Survey will, when possible, have it clearly demarcated in his presence with heaps of stones and will plot it carefully on each of the traces in a neat dotted line of black ink. In case he is obliged to correct the line, he will cancel the erroneous portion, initialling the corrections. He will sign and date both traces.

190. The contents of a boundary dispute file are as follows :—

Part I—

(a) Title page	...	...	<i>Vide</i> Rule	214
(b) Table of contents	...	..	..	215
(c) Order sheet	...	..	..	216
(d) Report of Inspector	...	..	..	217
(e) Khasra.	...	..	..	218(a)
(f) Trace.	...	..	..	218(b)
(g) Heading of decision	...	..	..	219
(h) Judgment.				
(i) Notice to parties	...	..	..	220
[(j) Certificate of draughtsman given at recess]	...	..	..	221(a)

Part II—

(a) Title page	...	...	<i>Vide</i> Rule	214
(b) Table of contents	..	...	..	215
(c) Reference slip	...	..	..	221(b)
(d) Khasra.	...	..	..	218(a)
(e) Trace.	...	..	..	218(b)
(f) Certificate of draughtsman given at recess]	...	..	..	221(a)

The judgment contains the substance of the important evidence and the names of the witnesses who gave it, and the reasons for the decision.

At the end of the judgment and in the reference sheet, the substance of the order is written in the vernacular of the area and in English in the form ; “the dotted line A, B, C, D, E is the boundary.”

191. The first part of the record will be sent to head-quarters immediately after the decision of the case ; the second part will be sent to the Inspector, who will show the boundary line on the 16-inch maps of the villages concerned, according to rule (*see tarmin of boundary*

disputes). The Inspector will make over the *khassra* to the amin, who does the *khanapuri*.

192. Special rules may be made by the Superintendent of Survey, limiting the powers of Assistant Superintendents of Survey, to decide disputes exceeding a certain area. Special instructions should be issued in these cases, as to the procedure to be adopted.

193. It may happen that the disputing parties agree among themselves to ignore existing possession, and to adopt as the boundary some line differing from that of possession, probably the line of the old Revenue Survey map.

In such cases the Assistant Superintendent of Survey should carefully explain to the parties on the spot the effect of the agreement, and if they decide on adhering to it, should lay the boundary according to their agreement. In fixing a boundary line over cultivated land according to agreement, the Assistant Superintendent of Survey should, if the disputing parties agree, cause the boundary to run along the "ails" of fields and not across them. If the new map is on the 16-inch scale, the Assistant Superintendent of Survey should explain to the parties that the boundary according to the old Revenue Survey map which has been enlarged from a 4-inch map is only approximately correct, and that, if this line runs near the "ails" of fields, the line of the "ails" is as likely to be correct, according to the Revenue Survey, as the line on the dispute trace. If, after such explanation, the parties still desire that the line should cross the fields, effect should be given to their wishes. Care should be taken to give public notice in the village of such adjustments between proprietors in order that tenants may not be prejudiced. Objections made by tenants affected by such adjustments should be enquired into.

When the disputed land is uncultivated, the question of possession will usually be more difficult to decide. The possession of uncultivated land is sometimes marked by the right to wells or houses or by the enjoyment of the right to graze or to the fruits of trees or to the spontaneous products of the earth or to take fish or let the fishing right in the case of water; but these indications are often obscure. In such cases the Assistant Superintendent of Survey will frequently find it necessary to refer to the Revenue Survey boundary, and the disputing parties will frequently have recourse to this line as a basis of agreement.

Petty disputes affecting small areas of waste land or roads are generally capable of amicable settlement. In such cases memoranda of agreement should be signed by both parties.

194. Petitions with regard to village boundary disputes, if presented

Petitions with regard to village boundary disputes, after the record-writing (*khanapuri*) has been finished should only be admitted when the Assistant Superintendent of Survey is clearly of opinion that great inconvenience or hardship will result from the maintenance of the boundary as shown in the village map and records. When an Assistant Superintendent of Survey directs that local enquiry be made on any such petition presented after the *khanapuri* stage, he may direct that the necessary

expenses of the inquiry shall be deposited before the objection is enquired into.

195. In deciding disputes as to boundaries of villages under the rule quoted above, an Assistant Superintendent of Survey cannot determine questions of title. Questions of title may be raised after final publication as disputes under section 106 of the Bengal Tenancy Act.

196. In proceedings under the Bengal Tenancy Act, if the question arises at any time before final publication whether certain land is or is not within the local area included in the notification issued under section 101 of that Act, the Revenue Officer can summarily decide the point. If he finds that it is, he will proceed to frame a record of rights for it; if he finds that it is not, he will do nothing further in the matter. If the question be raised after final publication, under section 106, he may deal with it as a dispute under that section.

197. When a dispute arises as to the boundary between two estates, both of which are included in one or more local areas which have been notified for survey, the Revenue Officer is bound, under section 102, to record the name of the landlord and tenant (if there be one) of every plot of land in the whole area notified for survey under section 101; and if any dispute is raised after final publication regarding any entry that he has made, he is bound to hear and decide the dispute under section 106.

198. Attention is drawn to sections 41 and 46 of the Bengal Survey Act, which authorise the erection of boundary pillars to mark permanently boundaries determined after dispute.

199. In surveys and settlements under Regulation VII of 1822, the procedure described in the foregoing rules is to be followed, as far as possible, for the settlement of boundary disputes. The Settlement Officer in deciding disputes is also to follow the provisions of section 15, clause 4 of that Regulation. The Settlement Officer has full power to summon witnesses and to record evidence under section 19, Regulation VII of 1822, and sections 12 and 13, Regulation II of 1819.

Regulation XII of 1817 and Act XX of 1848. The following special rules issued by the Board apply also to the case of temporarily-settled estates.

200. In tracing the boundaries of a temporarily-settled estate, the property of private individuals, which has become open to a resettlement of the land revenue, the Settlement Officer may find a boundary dispute existing between the holder of such estate and the holder of an adjoining estate, each claiming the ownership of the disputed tract of land.

201. In such a case the Settlement Officer will first satisfy himself whether the disputed tract is or is not liable to assessment.

202. If the tract forms part of an area which is covered by the existing assessment on an estate of which the settlement is not actually open to revision, or if it forms part of a revenue-free property, the tract cannot be liable to assessment. In that case the Settlement Officer will merely record his finding to that effect as the reason for taking no further notice of the disputed tract in his proceedings.

203. But if the tract does not form part of any such area, it will be liable to assessment to land revenue, and the question will be what party shall be called on, or admitted, to enter into the settlement engagement. In order to determine this, the Settlement Officer will proceed under the powers vested in him by section 19 and other sections of Regulation VII of 1822, and by the other laws on the subject, to ascertain which of the claimants is *de facto* in possession as owner.

204. Should he find that such possession is held by *A*, the owner of the estate under resettlement, the Settlement Officer will treat the disputed lands as a portion of *A*'s estate for the purposes of resettlement.

205. If, on the other hand, the Settlement Officer should find that in making the assessment on *A*'s estate, *de facto* possession as owner is held by *B*, the other claimant, he will leave the disputed lands out of account.

206. But the fact of *A* having allowed himself to be dispossessed of such lands by *B* is no sufficient reason for the Settlement Officer's allowing the lands to remain unassessed to the land revenue which is payable to the State. He should, in such cases, proceed under the first proviso to clause 9, section 10 of Regulation VII of 1822, to obtain the sanction of the Commissioner of Revenue (who now, under Regulation I of 1829, exercises the powers of the Board in this matter), to his making a separate settlement of the lands in question with the party occupying them as owner, and to his constituting such lands as a separate *tanzi* estate, separately answerable for the land revenue demand to be assessed upon it, and separately borne on the general register of revenue-paying lands.

207. On receipt of the Commissioner's sanction, the Settlement Officer will call on *B*, the *de facto* owner, to enter into an engagement for the land revenue which may have been assessed on the lands; and if he fails to do so, the Collector may proceed as provided in section 3, Regulation VII of 1822, in the case of recusant proprietors, the person whom the Settlement Officer calls on to engage for the land revenue being looked upon as the proprietor *prima facie* entitled to the *malikana* allowance under clause 2, section 5 of the Regulation.

208. Whether the party called upon to engage refuses to accept the settlement engagement, or accepts it under protest, it will be open to him, if not satisfied with the proceedings of the revenue authorities imposing an assessment on the land, to institute a civil suit for the annulment of the proceedings.

209. Should the Settlement Officer or Collector, after acting in accordance with the above instructions, be made a party to any civil suit between the rival claimants to the ownership of the lands, it will only be necessary for him to plead that he has acted strictly in accordance with the settlement law, and has done no act tending in any way

either to maintain or to disturb the possession of either party (*vide* the case of the Collector of Murshidabad *versus* Roy Dhunput Singh, Bahadur, reported at page 55, volume XV, Bengal Law Reports).

210. The instructions in the above rules 200 to 208 will not apply to boundary disputes arising in the course of settlement of estates the property of Government. If, in tracing the boundary of any such estate, lands within the boundary assumed by the Settlement Officer should be claimed by a neighbouring zamindar, who is *de facto* in possession of the same, no demand of land revenue can properly be enforced until the claim to ownership has been decided or admitted in favour of Government. All that the Settlement Officer can do in such a case is to lay down the undisputed boundary, and also the boundary up to which he claims that the ownership of Government extends, collecting and securing at the same time all the evidence available in support of the claim of the Government in order to its assertion in the Civil Court if necessary.

211. As the provisions contained in clause 6, section 2, and in the 30 following sections* of Regulation VII of 1822, may be made use of, as far as they are applicable, in the settlement of purchased and other khas estates,† the Settlement Officer should dispose of all disputes respecting boundaries of villages, taluks, and other tenures within such estates under clause 4, section 14 of that law, or refer them to arbitration under sections 7 to 10, Regulation IX of 1833.

* NOTE.—Sections 22, 25 and 27 of Regulation VII of 1822 have been repealed.

† Government order, 1st August 1839.

212. The returns and registers are drawn up to suit a system, according to which disputes involving areas greater than 20 acres are decided by the covenanted Assistant Settlement Officer in charge on the recommendation of the Circle Assistant Settlement Officer, or after such further enquiry as he may think necessary.

213. Returns Nos. I and II (*vide* Rule 222) must be despatched to the Cadastral head-quarters on the morning of the 10th and 25th of each month, together with a copy of the first six columns of Register I (*vide* Rule 223). Register II (*vide* Rule 224) will be kept by the covenanted Assistant Settlement Officer in charge.

Returns and Registers.

214.

TITLE-PAGE.

Boundary Dispute Case.

Case No.

Thana

Between village

and village or villages

Name

Thana No.

Name

Thana No.

Date of decision

Name of officer deciding the case

Appeal No.

215. TABLE OF CONTENTS.

List of papers in Boundary Dispute case Records.

Case No. Thana Zilla
Between village and village or villages

Name Thana No. Name Thana No.

Serial number.	Description of papers.	Date of order.	Number of leaves.	Value of court-fee stamp, if any.			REMARKS.
				Rs.	A.	P.	
1	Table of contents						
2	Order sheet						
3	Report of Inspector						
4	Khata of the disputed area						
5	Trace						
6	Decision						
7	Notice						
8	Miscellaneous papers						

216. *Form of Order Sheet in Boundary Dispute Cases.*

No. of case

190 .

Name of village
with thana name
and number

Against village
thana name
and number.

Serial number of order.	Date of order.	Order.	Signature.
1	2	3	4

217. *Inspector's report in Boundary Dispute Case.*

No.			Thana.		
Between village			and village		
Name	Thana	No.	Name	Thana	No.

SIR,

I BEG to submit, herewith, traces of this disputed boundary between the villages mentioned above, together with copies of *khassra*, etc., as per details below, duly filled in, for your inspection and orders.

List of papers	Date of institution of the dispute ...
Khassra	
Report	Date of khanapuri of the disputed area ...
Trace	
Signature of Inspector	Date of despatch of records... ..
Halka No. .	
Date	

- *Signature of the parties to the dispute.*

219. *Heading of decision in Boundary dispute cases.*

District _____ Thana _____
 In the Court of _____ at _____
 The _____ day of _____ 190 .

Case No. _____

_____ Thana { Name of village
 { Number

versus

_____ Thana { Name of village
 { Number

Date of local enquiry _____

} Present on behalf of _____
 }
 }

} Present on behalf of _____
 }
 }

Boundary Dispute Case.

Case No.	Thana	Zilla
Between village	and village	
Thana No.	Thana No.	

To landlords and tenants--

You are hereby called upon to be present personally or by authorised agent at village on the day of
190 , at o'clock, when the boundary dispute between the
villages mentioned above will be enquired into and, if possible, the
case decided on the spot.

Date , month , year 190 .

Assistant Superintendent of Survey.

<i>Reverse.</i>	
Number .. ..	.. ..
Date of receipt of notice ..	.. ..
Date of making over to peon ..	.. ..
Name of peon .. ..	.. ..
Date on which to be returned ..	.. ..
Date of return .. ..	.. ..

221. (a) *Certificate in Boundary Dispute Cases.*

Case No.	Thana
Between village	and village
Thana No.	Thana No.

[To be filled up in Cadastral Office.]

Sir,

The trace in the abovementioned case has been corrected by me, according to the decision of the deciding officer, after a comparison of the maps of the villages concerned.

Signature of officer
checking the corrections.

Signature of officer making
corrections.

[To be filled up in Settlement Office.]

Sir,

The *tarmim* made in the trace of the abovementioned case, according to the decision of the deciding officer, has been found by me to be correct.

Signature of Attestation *Peshkar*.

Signature of *Moaina Munsarim*.

Signature of *Janch Peshkar*.

221. (b) *Reference slip.*

The original is filed with
the record of village,—

To be attached with the
record of village,—

Reference slip of

Boundary dispute

Case No.

Thana

FIRST VILLAGE.		
Name	Thana No.	Name of thana.

SECOND VILLAGE.		
Name.	Thana No.	Name of thana

Copy of order—

District	}	Assistant Superintendent of Survey.
Dated		
	190 .	

Reference slip of boundary dispute case.

222. (a) BOUNDARY DISPUTES.

RETURN No. I.

Boundary Disputes of the fortnight ending

Name of officer

Circle No.

TO END OF PREVIOUS FORTNIGHT.			DURING THE FORTNIGHT.			TOTAL.			Pending.
Insti- tuted.	Decided.	Recom- mended.	Insti- tuted.	Decided.	Recom- mended.	Insti- tuted.	Decided.	Recom- mended	
1	2	3	4	5	6	7	8	9	10

222.

(b) RETURN No. II.

Details of Boundary Disputes decided during the fortnight ending

Serial No.	Name of first village.	Name of second village.	Date of local enquiry.	Date of decision.	Date of recom- mendation.	Date of despatch to cadastral head- quarters.	REMARKS.
1	2	3	4	5	6	7	8

223.

REGISTER No. I.

Of Institution of Boundary Disputes.

[A copy of columns 1 to 6 to be sent each fortnight to the cadastral head-quarters.]

Serial number in the camp.	Name of first village.	Name of second village.	Name of Inspector.	Date of institution.	Date of receipt from Inspector.	Date of local enquiry.	Date of hearing.	20 ACRES OR LESS.			
								Date of decision.	Date of despatch to cadastral head-quarters.	Date of despatch of reference sheet to Inspector.	Date of receipt from Inspector after farmim.
1	2	3	4	5	6	7	8	9	10	11	12

MORE THAN 20 ACRES.				APPEALS.			REMARKS.
Date of despatch of whole record to cadastral headquarters.	Date of receipt of reference sheet from cadastral head-quarters.	Date of despatch to Inspector.	Date of receipt from Inspector after farmim.	Date of receipt of altered boundary from cadastral head-quarters.	Date of despatch to Inspector.	Date of receipt from Inspector after farmim.	
13	14	15	16	17	18	19	20

CHAPTER XI.

Preliminary writing of the settlement record, i.e., Khanapuri.

225. In accordance with Rule 46 of the Bengal Tenancy Act Rules, the following are the principal documents to be prepared in the course of a survey and a preparation of the record-of-rights under Part I of Chapter X of that Act:—

- (i) the village map ;
- (ii) the khasra or field index ;
- (iii) abbreviated khatians, known as parchas, to be distributed to the occupants of lands while the writing of the khasra proceeds ;
- (iv) the khewat or abstract record-of-rights of proprietors and tenure-holders ;
- (v) the khatian or detailed record of each tenancy ;
- (vi) the terij or abstract of the village-record.

226. Under Rule 47, of the Bengal Tenancy Act Rules, the record-of-rights which must be published under section 103A (2) of that Act is to consist of the khewat and khatian

227. The rules here prescribed are to be followed as far as possible in all settlement proceedings whether under the Bengal Tenancy Act or other Survey or Settlement Acts or Regulations.

228. The Settlement Officer will, in every survey, prepare instructions for record-writing consistent with the instructions hereafter laid down and suited to the special circumstances of the tract under survey. The instructions should be prepared after enquiries made either before the survey commences or while the work of demarcation and boundary survey is proceeding. They will be submitted for the approval of the Director of Land Records and the Board, and should be translated and issued to the amins and inspectors.

229. Standard forms of khewats and specimen forms of the khasra and khatian are given at the end of this Chapter. The latter forms may sometimes require alteration to suit local conditions ; before record-writing commences, therefore, the forms should, in the case of large settlements, be determined by the Director of Land Records upon a report from the Collector or the Settlement Officer. There will ordinarily be two khatian forms, i.e., a working form known as the khatian slip, and a continuous form for the final copies.

230. The khasra and parchas are to be written up on the field in the language of the district. If the amins are not acquainted with the language of the district they must be supplied with a muharrir ; but such amins should never be employed except when no other arrangement is possible.

I.—Preliminary writing of the khewat, or record of proprietors' and tenure-holders' rights.

231. The following rules govern the procedure for the preparation of the khewat in proceedings under the Bengal Tenancy Act :—

Record of proprietary rights.

“(a) The proprietary khewat shall show the character and extent of proprietary interests. It shall be first drawn with reference to the registers maintained by the Collectors under the provisions of the Land Registration Act VII (B.C.) of 1876. As the record—writing proceeds, the proprietary khewat shall be altered in accordance with the facts of possession. The Settlement Officer shall, from time to time, under such instructions as the Board of Revenue may prescribe in this behalf, give information to the Collector of all alterations made in the khewat, and the Collector shall thereupon take action to make such corrections as may be necessary, in his registers prepared under the Land Registration Act. If the Collector, after enquiry under the Land Registration Act, finds that any entry in the khewat is incorrect, a note shall be made in the khewat of his finding.

“(b) A khewat may also, when the Revenue Officer thinks fit, be prepared to show the character and the interests of the tenure-holders, such of their interests as are of a raiyati nature being also recorded in the khatian.”

232 In proceedings under Regulation VII of 1822, the same forms and procedure are to be used, and the Settlement Officer should follow the law as to the determination of the rights of proprietors and tenure-holders laid down in that Regulation.

Preparation for khewat writing.

233. Before the survey of any area is undertaken extracts from the Collectorate Register D will be made on khewat forms for each village in the area. These extracts will specify the names and numbers of all estates which lie in each village together with the names, shares and residences of their proprietors. To ascertain beforehand what estates are contained in each revenue survey village it will be necessary to consult in the first instance Register C and to identify the villages named therein with the revenue survey villages. It may also be necessary to refer to Registers A and D and to prepare list of estates which have been partitioned since Register C was written in case Register C has not been kept up to date (*vide* also Rule 289 of the Settlement Manual).

234. The actual khewats of the village will be prepared according to the facts of possession as ascertained by local enquiry. If these facts do not agree with the extracts from the Collector's registers a separate note should be written for each estate explaining the discrepancies and showing how the persons now in possession derive their title from those recorded in Register D. The dates of all transfers and other changes as far as ascertainable should be recorded. Notices should issue to all recorded proprietors to be present at the enquiry, and if any proprietor is dead, enquiry should be made for his heirs.

The names, parentage, profession and residence of persons supplying information should be recorded and they should be made to sign the note.

235. A khewat is to be prepared, village by village, for each estate in a village. An estate is defined in

Each village to have a khewat.

section 3 (1) of the Bengal Tenancy Act. A revenue-paying estate always has a separate tauzi number in the Collector's tauzi roll.

KHEWAT, PART I, OF REVENUE-PAYING ESTATES, FORM No. (1).

236. In column 1 a serial number will be given for each estate

Entry of proprietors' name.

which bears a separate tauzi number in the village. Where an estate has been

privately divided and the proprietors collect rent separately from specific portions of the estate, each share will bear a fractional number, of which the numerator will be the serial number of the estate, and the denominator a second serial number beginning from 1.

237. In column 2 will be entered the names of estates found in the

Entry of names of estates.

Collector's registers bearing separate tauzi numbers. Where there are

several estates of the same name in one khewat, they should be distinguished by the addition of the name of the principal proprietors, thus:—Bishenpur, Bishenpur Jainarain, Bishenpur Suchit Singh, &c, Where there are several estates in a village the estate with the last number should be entered at the beginning and the rest in ascending serial order. Where lands are common to two or more estates (*shamilat*), they will be entered at the end of the khewat volume before the entry of lands held by Government. Lands common to two or more *pattis* within a single estate will form the last entry under that estate. Against the original entry of each estate to which any *shamilat* lands appertain should be entered a reference to the page of the khewat where the entries relating to those lands will be found.

238. In column 3 will be entered the sub-number of each separate

Entry of portions of estates.

account; also the name of the *patti* when the land has been specifically

divided. Where no name actually exists, the name of the chief proprietor should be added after the word *patti*, thus:—*Patti* Ram Rup, *Patti* Hossein Baksh, etc.

Tauzi numbers.

239. In column 4 will be entered the number of the estate on the revenue roll.

240. The entries in columns 5 and 6 will be made according to the actual facts of possession as ascertained under the procedure laid down in rule 234. The names of Managers should be entered under the names of proprietors.

241. If there be a dispute regarding the facts of possession, the claim of the person who is recorded in the Collector's registers should be allowed and the opposite party referred to the Collector. If neither party is recorded, the dispute should be decided in favour of the party who proves that his title is derived from the recorded proprietor.

242. If the proprietors hold separate shares privately partitioned and collect separately from specific portions of the estate, they are to be separately entered as provided in rule 236.

Procedure in cases of private partitions.

If they have privately divided their shares and collect separately, but not from specific portions of the estate, they are to be entered with a separate series of numbers noted against each proprietor or set of proprietors in this column.

243. Care must be taken to see that the shares entered in column 3 total to 16 annas.

244. Columns 7 to 10 will be left blank, to be filled in recess when the areas are extracted and the preliminary records completed. Column 11 will be filled up from the Collectorate registers. All khewats should be signed by landlords or by their representatives, and the addresses of non-resident landlords furnished.

KHEWAT, PART II, OF REVENUE-FREE ESTATES.—FORM No. (2).

245. The foregoing instructions apply *mutatis mutandis* to this form. Columns 2 to 5 will be filled up from the entries in the Collectorate registers, subject to the foregoing instructions. Columns 6 to 9 will be filled up when the survey operations are complete.

KHEWAT, PART III, OF TENURE-HOLDERS.—FORM No. (3).

246. In Khewat, Part III, will ordinarily be recorded the names and interests of all tenure-holders and under-tenure-holders in the village, whether permanent or temporary (*vide* also rule 304).

247. When there is any doubt as to whether a tenancy is a raiyati-holding or a tenure, regard should be paid to the provisions of section 5 of the Bengal Tenancy Act.

248. The Form No. (3) is to be prepared from the lease or other document whereby the tenure was created, or in which it is recorded.

KHEWAT COMPARISON.

249. (a) In minor settlements the Settlement Officer will report at once to the Collector the discrepancies that have come to light between the entries in the land registers and the facts of possession as recorded in the khewat.

(b) In major settlements it will as a rule be necessary to postpone the work of comparison till the close of the field season. The procedure then adopted will be as follows:—

A second copy of the khewat of each village will be made. The portion relating to each estate will be made on a separate sheet. All the sheets relating to each estate and the notes relating thereto will then be collected together, and the whole arranged in the order of their *tausi* numbers. From the village khewats and notes a mahalwar report with explanation of all discrepancies between the Collector's registers and the settlement khewats will be prepared and forwarded to the Collector.

250. The Settlement Officer will report to the Collector all changes made in the khewats after the reports of discrepancies referred to in rule 249 above have been submitted.

251. The Collector of the district will, in consultation with the Settlement Officer and after reference to the Commissioner and the Board, if necessary, decide what steps are to be taken to correct his registers. As a general rule, the work of correcting the registers should be taken up by the Collector as soon after *khanapuri* as possible, and a large staff should be employed to get it finished during the *khanapuri* recess. If any application for land registration is received by the Collector after the submission of the settlement *khewat* reports, the copy of the *khewat* in the Collector's office should be examined to see whether the application agrees with the *khewat* or not. If it does not agree, the Settlement Officer should be informed and should be asked for a report. This will usually be furnished at the attestation stage.

252. The guiding principle to be followed by the Collector in the revision of his land registers is that they should be corrected in accordance with the actual facts of possession ascertained on the spot by the Settlement Department. It is for this reason that the Settlement Officer has been instructed in rule 234 to make careful enquiries regarding discrepancies between the entries in the registers and the facts of possession, and to trace out the changes that have occurred by transfer and inheritance. The Collector should take action for the correction of his registers primarily under section 28 of Act VII of 1876, sending copies of the revised entries he proposes to make in Register D to all the interested parties along with notices in the prescribed form, and calling them to show cause why the correction should not be made. The onus of proving that the settlement *khewat* is incorrect should be placed on those who dispute its accuracy. The Collector may simultaneously with proceedings under section 28 take action under section 65 of the Act against parties who are shown by the settlement *khewat* to have been in possession for more than six months without recording their interests.

11.—Writing of the khasra or field index, and of the parchas and khatian slips.

253. The writing of the *khasra* and *khatians* should not be commenced, until the map of the portion of the village taken in hand has been finally passed and inked up.

254. In the case of large villages, the Settlement Officer will decide whether there shall be one *khasra* or a *khasra* for each *tola* or other division. In large villages. If more than one *khasra* is written, it will be convenient to divide the village map into sheets for each *khasra*. A continuous numbering of fields for the whole village should, however, as far as possible, be maintained. It is not necessary in this case to provide that one *amin* shall do the *khanapuri* of the whole village. It might be arranged that one *amin* should give Nos. 1 to 1,000 in his portion of the village, the next *amin* Nos. 1,001 to 2,000 in his portion and so on. Care must, however, be taken that one *amin* does not assign the same numbers as are assigned by another *amin*. Unused numbers will be deducted in enumeration of the whole number of fields in the village.

The name and Revenue Survey number of the original village must be maintained in addition to the name of the tola or other division.

255. All the land lying within the periphery of the mauza, which has been declared to be the unit of survey, will be mapped within that area, and the plots will have one sequence of numbers in the khasra, unless any special orders are passed to the contrary under rule 254 above. No exception will be made to the above rule in the case of *chit grazis* (i.e., lands belonging to other mauzas, but lying within the periphery of the mauza under survey). These lands will be treated as belonging to the mauza under survey and their proprietorship, with the estate to which they belong, will be duly recorded in the khewat and the khatians, separate entries being made as in the case of each of the other estates in the village.

Instructions for numbering fields.

256. (1) Before he writes the number of the fields in the map, the amin must go to the field with the map and records. He must send the cultivator round the boundaries of the field, and must carefully note that the subdivisions of fields (*kharis*) are all of the same class and held under the same right (*hukiat*). He must also see that no portions of fields adjoining and belonging to the cultivator, which are of the same class, and held under the same kind of right, and under the same landlord have been omitted. Any mistake made at survey must be at once corrected in the map.

(2) The amin must not give a number to a field in the map, until he has completed the kharapuri of the preceding field. He must invariably do the kharapuri on the field itself.

(3) The plot numbering will begin at the north-west corner of the village and end at the south-east, except in the case of villages with boundary disputes which have not been decided. In the latter case it may be arranged to end at the disputed portion.

(4) If the amin finds that he has omitted to give a number to a field, he must at once note the fact in the note-sheet (*yadlast*) with all the particulars required for preparing the khatian. When the rest of the village is completed, he will number the omitted field in the map giving it the number next after that of the last field in the village. In the khasra and khatian the number of the field will be written as in the map with a line over it, and over the line the number of an adjoining field. Thus, if the amin has forgotten to number and kharapuri a field next to field No. 72, and the number of the last field in the village is 315, he will give the omitted field the number 316 in the map, and will write in the khasra and the khatian ⁷²316. All such fractional numbers should also be noted in the margin of the sheets in pencil.

(5) Plot numbers will be inked up every morning, with great neatness, by the amin, before he goes to the field, care being taken that the numbers are all of the same size and not too small. The numbers of plots on margins, parts of which are in one sheet and part in another, will be entered in both sheets, the same number being given to each portion, except in the case referred to below.

(6) In the case of a large plot of jungle or waste land, a part of which is surveyed in one sheet and a part in another, the amin will close the margins of both sheets and treat the portions falling in each sheet as separate plots, and *khanapuri* them accordingly. The amin will close the margins by putting four dots, which should be inked in, in every one inch square along the margin which he desires to close thus—

In other cases, it may also be desirable or necessary to divide very large jungle plots at *khanapuri*. The amin will divide such plots using the same conventional signs, as above; the divided plots should not ordinarily be less than 40 acres in area.

(7) When there are two or more "tolas" or hamlets or estates in large villages having separate *jamabandis*, the numbering should be continuous throughout the village, unless the Settlement Officer otherwise order under rule 254 preceding; but, if possible, the first number of the second hamlet or estate will be the next in the series to the last number of the first hamlet or estate. In such cases the "tola" boundaries may be shown in the maps, and the *khatian* arranged *tolawar*.

257. Cultivated land which is part of a homestead is to be numbered separately from the houses. Huts and wells in fields are not to have separate numbers, but their existence should be noted in the column of remarks opposite the fields in which they are situated, and in case of wells it should be noted whether they are masonry or not.

258. Each person interested must attend at *khanapuri* to point out his fields, or must send some one on his behalf to do so. If he fails to do so, the amin will enter his name in the *yadidast*, and if his work is being delayed report the fact to the Inspector. The Inspector will forward this report with his remarks to the Assistant Settlement Officer who will summon the offenders if necessary. The headman is also required to attend, or to have some one present on his behalf, to identify the fields. The tenants and the landlord or his representative must also attend.

A general notice should be given to the landlords or their agent to attend, and to arrange for the attendance of the tenants when the record-writing in a village or estate is about to commence. The village officers are required to attend. The powers of compelling attendance are described in rules 96 to 103 of the Bengal Settlement Manual.

259. The simplest method of enforcing attendance when a general notice is disregarded is to issue special notices in Form F (*vide* rule 317), which may bear a fee of 12 annas each to the absentee tenants, requiring them to attend before the *amin* and warning them that if they do not attend they will be proceeded against according to law. If the person called on by notice does not attend, he may be summoned under section 50 of the Survey Act or under the Civil Procedure Code. If the summons be obeyed, a fee of 12 annas may be charged under rule 101 of the Government Rules. If the summons be not obeyed, he may be proceeded against by arrest, attachment of property, fine, or criminal prosecution, as the circumstances of the case may warrant (*vide* rule 98 of the Bengal Settlement Manual.)

260. The amin should not make copies of the khasra or khatian slip for any one; but when required, and when his work will not be hindered

Amin not to give copies.

thereby, he should afford facilities to zamindars and others to take copies in his presence. He should not initial copies as correct.

261. No erasures are allowed in any of the papers. If any correction has to be made, the words to be cut out will be scored through and the

Correction of records.

necessary correction will be made in red ink and initialled.

262. When the same entry has to be repeated, if the entry is short, it will be made in full. If it is long the words "as per number so

References to previous entries.

and so" may be used.

263. If the entries regarding one field in the khasra and khatian, or of one landlord in the khatian cannot be written in one space two or

Field spaces in the records.

more spaces may be used, and the spaces opposite them under the other columns must be left blank.

264. The amin will initial and date in the vernacular every khasra page and each leaf of the khatian and parchus, and every dispute list and

Initialling and dating of records.

note-sheet leaf, and will write his initials daily in the left-hand margin of the khasra, opposite the last plot khanapuri by him on the day.

265. The khasra and khatian will be compared; the amin will tick off the fields by a mark ✓ in pencil as he does the comparison, in

Comparison of khasra and khatian.

order that no number may be omitted or written twice. This comparison should be done daily as the work proceeds.

266. Disputes are of two kinds, namely, those about the village boundaries with the people of other villages and those about entries to be

Disputed entries.

made in the record.

When there is a dispute regarding anything that has to be entered in the record, no entry will be made by the amin or Inspector, until the dispute has been decided. Only the entries in the disputed columns are to be omitted; but the number of the plot in the khasra and khatian must be encircled with a red line, to show that there is some dispute about the plot. Should a dispute be raised after the *khanapuri* of a plot has been done, the particular entries disputed in the khatian must be encircled with red. If in any village disputes are very numerous, the amin should report the fact to the Inspector with the number of disputes, and the Inspector should report at once to the Assistant Settlement Officer. The rules regarding the entry of disputes in the dispute list are given in paragraph 295.

267. For each village a note-sheet in the prescribed form will be prepared, and will be fastened inside the cover of the khasra. It will

The amin's note-sheet or yaddast.

contain—

- (1) Notes on any point which the amin wishes to bring to the notice of the Inspector.

- (2) The numbers of fields in which any entry is incomplete, (except disputed entries) and the reasons therefor.
- (3) The names of absent parties.
- (4) The fact that a boundary dispute has been raised.
- (5) The receipt given by the landlord for his parcha.

In this *yaddast* the inspecting officer will record his inspection note. The Inspector will note the names of the tolas (if any) included in the village.

268. When the amin has completed the village, he will hand over all the papers to the Inspector, taking a dated receipt for them. At the same time he must call the attention of the Inspector to any points that require notice with reference to incomplete entries, etc., and he will clearly note all these points in the *yaddast*.

The following instructions apply generally to record-writing (khanapuri), but special instructions may be drawn up to suit different tracts.

269. On the first page of the khasra will be entered the name of the village, its Revenue Survey number, and its number in Collectorate Register C. The names of the tappa, pargana, thana and district, and the date of commencing and completing field survey and khanapuri respectively (according to both native and Christian eras), and the names of the Inspector and amin should also be given. The Inspector must exercise special care in checking the vernacular spelling of the name of the village, and must not pass the entry made by the amin without careful enquiry from the raiyats and proprietors of the village as to its absolute accuracy. When the village is known by two names, one of which is the local name used by the villagers themselves, and their neighbours, and the other is the official name used in the Land Registration Registers, the local name should be entered first and the official name after it in brackets.

Instructions for filling up the khasra (vide Form No. 4, Rule 312).

270. In column 1 of the khasra should be entered the serial number of the plot to agree with the map (see rules 256 and 257 ante).

Under the field number will be entered the number of subdivisions of the field (*kharis* or *kilas*).

271. In column 2 will be entered the name of the person cultivating the field in whose khatian the field is entered. The name of the first only of a group of co-sharers need be written. In the case of uncultivated lands no entry of the malik's name need be made in column 2, but the entry will be in the form "*gair mazrua khas*" for lands in possession of the rent receiver and in the form "*gair mazrua am*" for lands in which the villagers have a right in common. If there are two or more rent receivers in the village, the name of the malik should be entered in the form "*gair mazrua falan malik*."

272. In this column will be entered the serial number and volume

Column 3. Serial number.

number of the khatian of the tenancy in which the plot is included. The entry will be made in pencil at the khatian stage (*vide* rule 289).

273. Columns 4, 5, 8, 10, 12, 14, 15 and 17 remain blank at

Areas.

khatian. Areas in acres will be extracted in recess. In column 5 will be afterwards entered the area according to the local standard of measurement. The standard of measurement recorded in the Collectorate for the pargana or other local division in which the lands are situated should be taken as the local standard of measurement, unless another standard is found to be current or is set up, in which case the Settlement Officer will, after such summary enquiry as he thinks fit, decide what standard to adopt.

274. The method of irrigation whether from (i) Government canals,

Column 6. Irrigation.

(i) private canals, (iii) tanks, (iv) wells, or (v) Other sources, will be noted in this column. The khasra number of the tank, well, etc., from which the water is taken will also be entered. The column will be left blank for unirrigated fields. Where there are irrigation works, as in Orissa, special instructions must be issued as to records of lands which are unirrigated, but irrigable from the canals.

275. In each of these columns will be entered the crop in each field,

if cropped, under its appropriate harvest
Columns 7, 9, 11 and 13. Details of cropped lands.

i.e., either *bhadai*, *aghani* or *rabi*, etc. If two harvests have been taken from the field during the twelve months preceding the record-writing, it will be classed as *do-jusli* or double cropped, and its area will be entered in column 15.

Orchards bearing fruit, vegetable gardens, *pau* gardens, plantain gardens are cropped lands, and should be shown in column 13 and in the *mitan* khasra and crop statement.

N.B.—The following are the principal crops coming under each of the harvests:—*Bhadai*, *aghani* and *rabi*.

Bhadai.—*Aus*—*dhan*, *makai*, *marua*, *sawa*, *kodo*, *Janera*, *urid*, *china*, *kaoni*, *indigo*, *flax*; includes also *jowar*, *bajra*, *gondii*, *bhadai kalai*, *patua* (*hibiscus cannabinus*), cotton, *bhadai til*, other *bhadai* cereals and pulses, other *bhadai* food-crops, and other *bhadai* non-food crops.

Aghani.—*Aghani dhan*, *alau*, *methe*, sugar cane, etc. *Rabi*.—Wheat, barley, oats, *rahar*, *khesari*, gram, peas, potatoes, *masari*, *jao*, *kerao*, *linseed*, cotton, mustard, poppy, tobacco; includes also *borodhan* (summer rice), *matar*, *mung*, *rabi*, *kabai*, *til*, other *rabi* cereals and pulses, other *rabi* food-crops, other oilseeds and other *rabi* non-food crops.

Where the above arrangement is not suitable to a particular district, the Settlement Officer in consultation with the Collector will alter it.

In the case of mixed crops, the Settlement Officer in consultation with the controlling authority is to decide what mixed crops are important (*e.g.*, wheat and barley), and what are unimportant. In the case of important mixed crops, both crops will be entered in these columns as mixed, and the Settlement Officer or Director of Land Records will supply a formula for entering the proportion of each crop,

when statistics of crops are being prepared in office. This proportion will be ascertained by enquiry as to the proportion of seed sown, by experiment as to the produce, or otherwise. In the case of unimportant mixed crops, the amin will estimate the proportions of each crop and enter them separately.

276. The amin will enter the description or detail of all uncropped land and the distinguishing name of each item must be clearly given, so that the items may afterwards be properly classified under one or other of the following heads :—

(a) CULTURABLE.

- | | |
|---------------------|---|
| (1) Current fallow. | (3) Groves (uncultivated) not bearing fruit, and bamboos. |
| (2) Old fallow. | (4) Thatching-grass. |

(5) Other kinds (if any).

The following are “other kinds” of “culturable area” :—Forest jungle, threshing-floors, waste adjoining village sites, temporary huts or cattle-sheds, and the waste surrounding them, excavations near village sites and along roads or rail-roads.

(b) NON-CULTURABLE.

- | | |
|---------------------------------|--|
| (1) Houses. | (5) Canals. |
| (2) Sites of temples. | (6) Rivers. |
| (3) Burning and burial-grounds. | (7) Unculturable <i>jhils</i> and <i>chars</i> . |
| (4) Tanks. | (8) Roads. |

(9) Other kinds of non-culturable lands.

“Other kinds of non-culturable lands” include *usar*, unculturable jungle, ravines, broken ground, etc., camping grounds, embankments, mounds, rail-roads, barracks, bungalows, brick and lime-kilns, and permanent cattle-sheds. Further subdivisions may be made according to local requirements.

277. All fields uncultivated for three years and upwards will be entered as “old fallow.” All fields which have not been cropped in the year of survey, but which have been cultivated within three years, will be entered as “current fallow.” In special cases the Director of Land Records may order the separate record of lands that have been thrown out of cultivation for a period of less than two years.

278. When the land is held on the system of payment of rent in kind instead of cash, the fact that it is so payable should be recorded by the entry of the word *bhaoli* or *batai*, *kankut* or other local word in use in the remarks column.

279. In the column of remarks (18) the amin will note the fact of a produce rent being paid (as provided in rule (278) ; also the number and kind of wells, trees, houses, huts, etc., and the person in whose possession they are. These entries should not be copied in the remarks

Column 18. Remarks.

column of the *khatian* slips or of the *parchas*, except by special orders of the Settlement Officer.

280. It is in some places as, *e.g.*, Ranchi and other districts of Chota Nagpur, the custom to cultivate upland fields not every year, but once every second or third or fourth, etc., year. In the Chota Nagpur *khassra* a column has been provided between columns 6 and 7 of the standard *khassra* in order to record the cycle of years in which a crop is grown. In this column will be entered the words one, two, three, etc., according as the field is cultivated every year, every second year, etc. Sometimes, too, it is the custom to grow crops in *two* successive years and then leave the ground fallow for two or more years. In such a case the proper entry is obtained by dividing the total number of years in the cycle by the number of years in which crops are sown, *e.g.*, in the first year *gora* is sown, and in the second year *gonali*. The field is then left fallow for four years. The total number of years in the cycle is six and the number of the years with crops two; $\frac{6}{2}=3$. Fractions may be ignored. If the cultivator states that one portion of an upland field is cultivated at different intervals from the second portion, *e.g.*, one-third is cultivated every third year, and two-thirds every fourth year, the *amin* will *khanapuri* it as one field and will strike a rough average of the whole in order to fill up the column. This class of fields should be carefully distinguished from the class referred to in rule 277 above.

Preparation of *parchas* and rules as to them. 281. The triplicate *parcha* form [*vide* rule 313] consists of—

- (a) the *khatian* slip form, with the landlord's and *raiya*t's area slip attached;
- (b) the landlord's *parcha*;
- (c) the *raiya*t's *parcha*.

• Separate sets of triplicate *parcha* forms will be prepared for each estate, bearing a separate *tanzi* number, and separate triplicate *parcha* forms will be prepared for lands held, even by the same tenant, under different rights in each estate.

Separate sets will also be prepared for each *patti* of an estate to which a fractional number has been given in the *khawat*. Each of the three parts of the form will bear the same serial number.

282. A separate triplicate *parcha* will be prepared for—

- (a) the land in cultivating possession of each proprietor, tenure-holder or under-tenure-holder;
- (b) the land of each *raiya*t holding;
- (c) the uncultivated land in possession of each proprietor, tenure-holder or under-tenure-holder;
- (d) the uncultivated lands which are in the common possession of the proprietors and tenants of one or more estates in a village, such as tanks, roads (other than Government roads), grazing lands and the like;

- (e) lands held by (i) Government, (ii) Railway Companies, (iii) District Boards, and (iv) other public bodies ; and
(f) the lands held by each under-raiyat.

Each plot in the village will thus be entered in one triplicate parcha and in one only, save in the case of a plot held by an under-raiyat which will have double entry. Each triplicate parcha will refer back to the khewat entry, whether in Parts I, II or III, which represents the estate, patti or tenure within which the lands of the parcha fall. If any portion of the land falling under class (a) above is claimed to be proprietor's private land according to the provisions of Chapter XI of the Bengal Tenancy Act, it will be entered in a separate triplicate parcha. Lands held by the same raiyat within the same estate, patti or tenure, but under different rent account, will be entered in a separate triplicate parcha for each different raiyat or different rent account. The landlord's jamabandi should ordinarily be followed in determining how many separate triplicate parchas should be opened for the lands of a raiyat under him. Thus, unless special instructions to the contrary be issued, lands held on cash rent and lands held on produce rent by the same raiyat should be entered on a single triplicate parcha, if there is only one entry relating to the raiyat in the landlord's jamabandi.

283. A triplicate parcha will be opened by the amin as soon as the first plot to be entered in it has been written up in the khasra. The remaining plots, if any, will be added as they are entered in the khasra in the course of khanapuri.

284. The tenant's parcha will be given to him when the first entry is made in it. The landlord's parcha will be given to him as the last entry is made.

In some districts, however, it may be found inadvisable to entrust the distribution of parchas to the amin. In that case they will be distributed by the Assistant Settlement Officer personally. The Settlement Officer should report to the Director of Land Records beforehand which system is more suitable for the district or area concerned, and the latter will decide which system is to be followed.

285. The following portions of the triplicate parchas are to be filled up by the amin in the field :—

(a) On the obverse—

- (1) The headings,
- (2) Columns 1, 2, 3 and 4.

(b) On the reverse—

All columns, except those for area. No entries of rent or status are to be made by the amin, but the fact that a particular field pays a produce rent should, if undisputed, be entered in column 7.

Instructions for writing up the khatians and parchas.

286. When an amin first opens a triplicate parcha he will fill up all the headings on the obverse of the form.

Headings.

287. In column 1 will be entered the name of the proprietor of the estate or patti with his number in Khewat, Part I or Part II; if there

Column 1. Proprietor.

are several co-sharers, it will be sufficient to give the name of the first as entered in the khewat.

288. In column 2 will be entered the name of the intermediate landlord, if any, to whom the rent is payable, together with a reference to

Column 2. Intermediate landlord.

his number in Khewat, Part III. If only a share of the rent is payable to him, the share should be specified.

289. Column 3, Serial No., will be left blank at khanapuri, but the pages of the blank triplicate parcha volumes will be numbered serially by the amin, the numbers

Column 3. Serial No.

being written in pencil at the top of each portion of the forms. If the fields belonging to one tenant are too numerous to be entered in one page of the volume, a second page will be used, and a third or fourth page, if necessary. On the first page of the tenant's khatian there will be a note in the form "see number so and so;" reference being made to the remaining pages, when a similar reference will be given. The entry to be made in pencil in column 3 of the khasra, (*vide* rule 272), will agree with the number entered in pencil at the top of the triplicate parcha form.

290. In column 4 the name of the principal tenant, *i.e.*, the tenant

Column 4. Name of the tenant.

responsible for the payment of rents, with his father's name, his caste, and residence, will be written first, and the names of all other persons having an interest in the holding, with their father's names, caste and residence. The respective sharers of co-sharers will be recorded after their names.

291. (a) Where a tenant has transferred his right to the whole

holding to which the plot belongs, by mortgage or sale, and the transferee is in cultivating possession, the name of

the transferee will be entered under that of the tenant together with the date and details of the transfer. If the transferee by sale has been recognized by the landlord, his name only will be recorded, and it is unnecessary to record the name of the original tenant or the details of the sale. This applies also to the case of a tenant who has purchased a holding at an auction sale in execution of a decree for arrears of rent and is in undisputed possession.

(b) If only a portion of the holding has been transferred by mortgage or sale, no entry of the transferee will be made on the obverse of the khatian, but the fact of his possession and the details of the transfer will be noted in the column of remarks on the reverse of the khatian against the first plot concerned, and a reference to this entry

will be made in the remarks column of other plots, if any, covered by the transaction.

292. The following miscellaneous instructions should be followed :—

Female tenant.

(a) Where a female is the cultivator of the field, her name should be followed by that of her father or of her husband, according as she inherited from one or the other.

Entry of heirs.

(b) Where the tenant recognized by the landlord is dead, all the heirs inheriting should be entered in column 4.

(c) Where several co-sharer tenants have partitioned a holding, but the landlord has not recognized the partition, separate khatians are not to be prepared. The name of the tenant recognised by the landlord will be entered first in column 4, followed by the names of the other co-sharers as joint tenants of the original holding. Their separate possession of particular plots will, however, be noted in column 12.

Unrecognized partition.

293. (a) In the case of uncultivated lands in direct possession of the proprietor, tenure-holder or under-tenure-holder, the entry in column 4 will be “*gair mazrua khas*” or some other corresponding phrase.

Unoccupied lands.

(b) In the case of tanks, roads, grazing lands, etc., over which the village community exercises common rights, the entry in column 4 will be “*gair mazrua am*” or some other phrase.

Common lands.

(c) Where the land is the property of, or in the occupation of, Government, the entry in column 4 will be “*Kaisar-i-Hind*.” This entry will be made even where the tenant or landlord has encroached on portion of a Government or public road, i.e., one maintained at the expense of the District or Local Board. The area encroached on will be plotted separately from the rest of the road, but will be entered in the “*Kaisar-i-Hind*” khatian, the name of the person actually in possession being recorded in column 12 against the plot concerned.

Public lands, roads, etc.

294. It is essential that the amin should keep together on one khatian slip or of slips the lands belonging to one holding, and that, where a tenant has more than one holding, the plots belonging to different holdings should be carefully distinguished. In order to ensure this, the amin should when possible get a copy of the landlord's current jamabandi, and in any case should enquire, when a tenant's first plot is khanapuried, whether he has one or more holdings. He should at the same time enquire whether the whole or any portion of the holding has been transferred by mortgage or sale.

General instructions.

295. (a) The amin must enter in the dispute list all disputes directly they are preferred before him, giving a separate serial number to each dispute and not to each plot in dispute. If a dispute is preferred with regard to a plot already recorded, he shall write in the remarks column of the dispute list “filed after khanapuri.” When writing the names of the parties in the dispute list, the amin must take care to

Treatment of disputes.

write their names, fathers' names and residences. If a party consists of several sharers, the names of all of them must invariably be entered in the dispute list. If the proprietorship in regard to any field held by a raiyat is in dispute, a separate triplicate parcha, omitting entry of landlord's name, must be prepared for it. The landlord's parcha will be retained and kept with the khatian slip, but the raiyat's parcha will be made over to him. If there is a dispute with regard to the tenancy in any plot, the amin will not give to any person a parcha for such plot, unless and until the dispute be decided by an order of a Khanapuri officer.

(b) All disputes regarding tenancy must be entered at the time of khatnapi in a triplicate parcha, to be called the "parcha of disputed possession," a separate parcha being used for each separate tauzi or patti, and the disputes so entered, which are disposed of by the Khanapuri officer, will be scored through and initialled by him. The tenants' and landlords' parcha containing such entries will not be given to any one, but will be filed with the records. This parcha is only for disputed possession of plots. Plots in which there are disputes not affecting a tenancy, but regarding trees or proprietorship, will not be entered in it. For plots affected by disputes still undisposed of at the time when the amin having completed Khatnapi is about to leave the village, the amin will write up the four boundaries in the parcha of disputed possession to enable the khatnapi officer to identify the plots in dispute, if in the absence of the map and khasra he subsequently visits the village to decide the disputes which are pending. Ordinarily disputes regarding tenancy only are entered in the parcha of disputed possession, but plots affected by proprietary disputes must also be entered together with their four boundaries in the parcha for the information of the Khanapuri officers, if the disputes are still undecided when the amin leaves the village. Prompt intimation should be sent by the Inspectors to the Khanapuri officer regarding villages in which disputes are either numerous or affect many entries, so that he may arrange to pay an early visit to decide the disputes and thus save the extra labour necessitated by this rule. If at the time the amin leaves the village any plots remain on the *qadilash* which have not been khatnapied, because it is believed that the names of the cultivating miyats have been suppressed, such plots shall be entered by the amin in a list on the khasra form as used for boundary disputes in which the four boundaries and all the ordinary khasra entries will be recorded, column 7 being left blank. This list will be made over by the Inspector to the Khanapuri officer in charge of the circle for further enquiry, and will be accompanied by a rough trace showing the position of the plots in question, with such topographical details as will enable him to readily identify them on the ground. After enquiry the Khanapuri officer will fill up the blank columns of the khasra and return it to the cadastral office for completion of the record.

(c) Where it becomes necessary, on the decision of a dispute, to make any new entry in a parcha already issued, the amin should call upon the holder of the parcha to produce it, and on its production should make the change which he will already have made upon

the landlord's parcha and the khatian slip. If, in consequence of a decision, it is necessary to enter in a new parcha a plot which has already been wrongly entered in another parcha, he should note in the remarks column of the second parcha that the earlier entry has been cancelled. All alterations or entries made in the record by the amin, in accordance with the decisions passed on disputes, will be checked by the camp record-keeper, who will initial and date each item in the dispute list in token that the alterations or entries have been correctly made, provided that when a khanapuri officer's decision entailing the subdivision of a plot has been passed after the completion of khanapuri, the correction of the map and the record will be left over to be done at attestation, the fact being noted in the dispute list. In areas where disputes are very numerous, it may be necessary to postpone the bulk of this check work till recess. In such cases, the Inspector should be held responsible for the correct carrying out of orders, and the record-keepers should check carefully some recods of each halka selected at random, to see that the work is not being neglected.

296. (i) When land is cultivated by the proprietor or tenure-holder the entry in column 4 should be "cultivated by the proprietor or tenure-holder" his name being added. The Revenue officer will subsequently determine if the land is proprietor's private land under Chapter XI of the Tenancy Act, or not.

(ii) The following instructions are issued for the entry of such lands by the amins:—

(1) If a field is cultivated by a proprietor himself or by his hired labour, the entry in column 4 of the khatian will be "cultivated by proprietor" and if claimed as proprietor's private land, the words "claimed as proprietor's private land" should be added. The length of time the field is alleged to have been cultivated by the proprietor should also be given here.

(2) If the field is claimed by a proprietor as being in his cultivation and as cultivated with hired labour, whereas a cultivator claims to hold it as a raiyat, the column will be left blank and an entry made in the dispute list, in accordance with the rules for disputed entries.

(3) If the field is claimed by a proprietor as his private land, but is cultivated by a tenant, the raiyat's name will be entered in this column, the presumption being, till the contrary is proved, that the land is raiyati; but if the raiyat does not deny the claim, the words "claimed as proprietor's private land" will also be entered. If the raiyat does not admit the claim, the entry of the claim should be made in the dispute list, not in column 4.

(4) In the case of every field where "claimed as proprietor's private land" is written in column 4, i.e., when the amin finds no dispute to exist, the claim should, as far as possible, be enquired into on the spot at the khanapuri stage by the officer in charge of the circle.

(5) In the case of every field cultivated by a tenant, whether claimed as proprietor's private land or not, a parcha will be given to the tenant, or the plot should be entered in his parcha, if he has one already. For

land cultivated by the proprietor himself, or by the proprietor with the help of hired labour, a *parcha* will be given him without specification as to whether the land is or is not proprietor's private land.

(6) For every village a separate list should be drawn up by a Revenue Officer, either at the *khanapuri* or attestation stage, enumerating by their *khasra* numbers the fields which have been found to be true proprietor's private land. The *khatian* will be written in accordance with this proceeding, which should be corrected or added to by the Revenue-officer in charge from time to time as the work proceeds.

297. When land covered by houses form part and parcel of a *raiyyat's* holding, together with his agricultural lands, all should be included in one *khatian* slip for the holding. When lands covered by houses are not included in an agricultural holding, they may be entered separately in a continuous *khatian* slip for the whole village site, if this be convenient, but details of occupancy must always be entered against each plot number.

298. On the reverse of the *khatian* slip in column 5 will be recorded the serial number of the plot agreeing with the number in the *khasra*.

Column 5. Number.

299. (i) In column 6 will be entered the name of the occupant of one field on each of the four sides of the field surveyed. It will not be

Column 6. Boundaries.

enough to enter "east of the preceding field." The boundaries should be given as follows:—

North	...	...	...	A. B.'s field.
South	...	...	...	C. D.'s "
East	...	...	...	E. F.'s "
West	...	...	...	This <i>raiyyat's</i> field, number so-and-so.

It has been found useful to give the boundary on all four sides, in order to enable the parties to understand at the time of attestation what plots are entered in their names.

(ii) The boundaries of houses, roads, rivers and tracts of waste land not held by *raiyyats* need not be given in this column; but the boundaries of small portions of waste or other uncultivated land held by *raiyyats* should be invariably recorded.

300. In column 7 will be entered the description of land or class of soil as locally known and recognized by the cultivators of the district.

Column 7. Description of Lands.

The Settlement Officer will, after enquiry and report to the Director of Land Records, issue detailed instructions as to the classification to be observed.

301. When the field is admitted to pay an ordinary produce rent, the words *bhaoli*, *batai*, or *kankul* will be written by the *amin* in column

Column 8. Produce rent.

8, or, if a certain fixed number of maunds per bigha be paid, the word *maukhap* will be entered. If the claim is disputed, the entry will be made in the dispute list, and no entry will be made in column 8. No other entries regarding rent will be made by the *amin*.

Column 12. Remarks.

302. In the column of remarks entries will ordinarily be made of the following :—

- (a) Rights in trees.
- (b) Rights of way and other easements.
- (c) The separate possession of co-sharers.
- (d) The possession of transferees.
- (e) The possession of under-raiyats.

Detailed rules for the entry of the above should be issued by the Settlement Officer. The rules will vary from district to district according to local conditions. They should be submitted in each case for the approval of the Director of Land Records.

303. The above rules apply *mutatis mutandis* to under-raiyats. Under-raiyats. Separate triplicate parchas will be prepared for each under-raiyat for lands held by him under different raiyats, and the name and number of the khatian slips of the superior raiyats will be entered in the column for name of tenure-holders.

304. All tenuro-holders ordinarily find entry in Khewat, Part III. Minor tenuro-holders. But in some settlements, e.g., Orissa, special orders have been issued whereby certain classes of tenuro-holders are not entered in Khewat, Part III. In such cases the khatian slips prepared for tenure-holders should show :—

- (a) in detail, field by field, the lands held in their direct possession; and
- (b) the totals, but not the details, of each holding of their tenants: the details will be found in the khatian slips of the inferior tenants and of the tenure-holders' khatian slips.

Lists of notable objects and of agricultural stock.

305. In addition to the records mentioned above, the amin will also prepare at khanapuri the reference list of notable objects occurring in the survey, and the list of agricultural stock or *farri hawala*. He will be supplied with standard forms in which he will make the entries. The reference list will be prepared as the amin does the khanapuri of each field. The list of agricultural stock may be prepared at the amin's lodging; but he should take care that no names are omitted. To secure this he will examine the "name of raiyat" column in each khatian, and see that the name has been entered in the form. Assistant Settlement Officers, Kanungos, Head Inspectors and Inspectors will check a number of entries in both forms, paying particular attention to see that the lists are complete. They will

initial and date all entries checked by them. The following items will be entered in the reference list :—

- | | |
|---|--|
| 1. Village sites. | 16. Other roads (from—to—), it should be noted, whether <i>pucca</i> or not. |
| 2. Sites of tolas. | 17. Milestones, with number. |
| 3. Sacred groves, <i>e.g.</i> , <i>sarna</i> . | 18. Market places, the day or date of the market should be noted. |
| 4. Hills, peaks, etc. | 19. Places where large fairs are held, with dates. |
| 5. Jungles. | 20. Public offices and buildings. |
| 6. Rivers. | 21. Dāk bungalows and Inspection bungalows. |
| 7. Tanks. | 22. Police and Ghatwali bungalows. |
| 8. Large waterfalls. | 23. Thanas and outposts. |
| 9. Cemeteries. | 24. Pounds. |
| 10. Burning ghats. | 25. Railway stations. |
| 11. Churches, <i>e.g.</i> , German Mission Church. | 26. Ferries. |
| 12. Temples, <i>e.g.</i> , <i>shivalay</i> . | 27. Large residential houses. |
| 13. Mosques. | 28. Outstills. |
| 14. Other places of worship, <i>e.g.</i> , <i>Devasthan</i> . | |
| 15. Government roads (from—to—), it should be noted, whether <i>pucca</i> or not. | |

306. When the Inspector has received the record in accordance with rule 268 he will examine the *yaddast*, and will dispose of all matters left incomplete by the amin, referring, if necessary, to the Assistant Settlement Officer. He will then send the record to the head-quarters of the Assistant Settlement Officer without delay. In case it is the Assistant Settlement Officer's duty to

Return of the records to the cadastral camp.

distribute the *parchas*, he will then fix a date and issue notices accordingly to landlords and tenants. The *parchas* appertaining to four or five villages may be distributed at some convenient and central place. The Assistant Settlement Officer will take the receipts of the rent-receivers on the *yaddast*. All *parchas* not distributed will be returned by him to his head-quarters, where they will be entered in a register showing the name of the village and the names of the cultivators or other persons concerned. These will be distributed by the Assistant Settlement Officer on application on the 10th and 25th of each month.

The Assistant Settlement Officer will forward the records as soon as he has decided the internal disputes to the cadastral head-quarters. Each record will be accompanied by a list of contents in a prescribed form. He should endeavour to clear off all disputes as soon as possible; and it is desirable that completed records should reach the cadastral head-quarters punctually. The Assistant Settlement Officer in charge will carefully enquire at each inspection, whether Assistant Settlement Officers are keeping villages back from failure to decide internal disputes.

Khewat (Part III) of Interests of Patnidar, Thikadar, Ijaradar, or other tenure-holders. See Rule 48(b) of the Tenancy Act Rules.

Village

No. in Collector's Register C.

Pargana

Thana

Thana No.

District

Number.	Name of tenure-holder.	Name of estate and number in column 1 of the proprietary khewat.	Name or names of tenure-holder's landlord or landlords.	Extent of tenure-holder's interest.	Area held by tenure-holder in acres (if he has specific possession).	Area in bighas of—square yards.	Rent payable by tenure-holder.	Mode in which rent was fixed.	Period for which the rent has been fixed from—to.	Nature, conditions, and incidents of the tenure.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12

N.B.—Column 11.—In the case of a tenure which has been created by a registered deed, merely the registration number, date of the deed, and the name of the office in which registered need be recorded in this column.

Form 10.

Peshani Khasra Form.

Village.	Description of tenure.
Survey No.	
Register No.	
by which known	
according to the Collectorate Register.	
Name according to Revenue Survey	
Tappa	
Thana	
Pargana	
Zila	
Date	Of commencement of survey. Of completion of survey.
... ..	Of commencement of khasapuri. Of completion of khasapuri.
Name of amin	Survey Khanapuri.
Name of Inspector	
Year 190 190	

Triplicate Parcha Form—conold.

OBSERVE.

LANDLORD'S PARCHA.					RAIYAT'S PARCHA.				
Name of village Pargana Thana		Revenue Survey number. Thana number	Mahal Tauli number Patti		Name of village Pargana Thana		Revenue Survey number Thana number.	Mahal Tauli number Patti	
1. Name of proprietor.					1. Name of proprietor				
2. Name of intermediate landlord, if any.					2. Name of intermediate landlord.				
3. Serial number of parcha.		4. Name, parentage, caste and residence of tenant.			3. Serial number of parcha.		4. Name, parentage, caste and residence of tenant.		
13. According to landlord.		14. According to tenant.		15. Ascertained by Revenue Officer.	16. Fair rent settled, by Revenue Officer if any.	17. Whether rent fixed by contract, order of court, or otherwise.			
13. According to landlord.		14. According to tenant.		15. Ascertained by Revenue Officer.	16. Fair rent settled, by Revenue Officer, if any.	17. Whether rent fixed by contract, order of Court, or otherwise.			
Rent		Cess		Total		18. Status and length of possession in the case of non-occupancy raiyat or under-raiyat.			
18. Special conditions and incidents, if any.					19. Special conditions and incidents, if any.				

REVERSE.

KHASRA NUMBER OF FIELDS AND BOUNDARIES.		Description of land.	Remarks.	KHASRA NUMBER OF FIELDS AND BOUNDARIES.		Description of land.	Remarks.
Number.	Boundaries.			Number.	Boundaries.		
5	6	7	12	5	6	7	12

314.

Dispute List of Mauwa

No.

*Thana**District*

Serial No.	Date of institution.	Khasra No. of khewat No.	Names of parties, parentage, caste, residence.	Short description of dispute or of parties' claims.	Order passed by khanna-puri officer.	Date of tarmim with initials.	Orders passed by Attestation officer.	Date of tarmim with initials.
1	2	3	4	5	6	7	8	9
			(1st party) ...			Khatian No.		
			(2nd party) ...			Date of check with initials.		Date of check with initials.
			(1st party) ...			Date of tarmim with initials.		Date of tarmim with initials.
			(2nd party) ...			Khatian No.		
						Date of check with initials.		Date of check with initials.

316.

FORM No. 7.

Statistical Statement showing the number of stock.

NAME OF VILLAGE OR ESTATE, PARAGANA, DISTRICT.	Cows.	Bullocks.	Young stock.	Bulls reared or bred at Government farms with name of farm.	Ordinary Bulls.	Buffalo bulls.	Buffalo males.
1	2	3	4	5	6	7	8

Cow buffaloes.	buffalo calves.	Sheep.	Goats.	Horses and ponies.	Mules.	Donkeys.	Camels.	Ploughs.	Carts.
9	10	11	12	13	14	15	16	17	18

" Young stock and buffaloes not old enough to work or to produce young should be entered in column 6.
 "This instruction is issued at the instance of the Government of India in order to secure uniformity in the classification of stock according to age."

317.

FORM F.

Special notice to procure attendance for the purpose of making entries in the records.

District

In the Court of the Settlement Officer at
Assistant Settlement Officer

WHEREAS your attendance is required to prepare the record of mauza you are hereby required to attend before the *amin* of the village to give such information regarding your lands as may be necessary for the purpose of preparing the record, and to produce for his inspection all relevant documents. If you fail to comply with this notice, you will be proceeded against according to law.

CHAPTER XII.

INSPECTION AND TESTING OF THE RECORD-WRITING OR KHANAPURI.

318. While the record-writing is in progress, or before the close of the field season, it must be tested by
By whom testing is to be carried out. (i) the Inspector, Head Inspector and Kanungos employed to check the survey, (ii) Settlement Officers or Assistant Settlement Officers.

319. The Assistant Settlement Officer must visit every village in his circle at least once, and if he finds that the work is not up to the standard, he must pay a second visit. Before leaving an Inspector's *halka*, the Assistant Settlement Officer must see the Inspector, and point out the mistakes which he has found to prevail in his *halka*. Inspectors should never be summoned out of their *halkas*.

320. In order to fill up correctly his register diary, the Assistant Settlement Officer must keep a notebook, in which, at the time of inspecting *khanapuri*, he will make the requisite notes.

321. In addition to the register diary, he will also keep a diary in the form kept by all touring officers, in which he will record all important matters which come to his notice. The object of the second diary is to keep the Assistant Settlement Officer in charge informed of all that is important from a settlement point of view. When desirable, extracts from these diaries will be sent for the perusal of the Director of Land Records. It may be found convenient to substitute for the tour diary a Mauzawar inspection note which can be passed on to the Attestation Officer.

322. The Assistant Settlement Officer will observe the following procedure in testing the records, and supervising the work:—

- (i) He will first examine the khasras, khatians and parchas, to find out whether the records are in proper form, and whether the Inspector has corrected all palpable errors due to ignorance or carelessness on the part of the amin. If he finds that the Inspector has neglected these duties, he will call on him to explain.
- (ii) He will examine the amin's note-sheet (*yaddast*), and pass orders on all matters referred by the amin or Inspector.
- (iii) He will test a number of entries in the records. To do this, he will take the map, khatian and khasra and proceed to the particular spot where he wishes to test the work.

He will see (a) that all "fields" have been accurately surveyed, (b) that all the entries in the khatians and khasras are correct, (c) that the entries in the raiyati parchas and landlord's parchas agree with those in the khatian. He will pay particular attention to classification.

He should check the entries with respect to ten to twenty fields in this way. Assistant Settlement Officers should remember that quality is more important than quantity, and consequently that the testing should be thorough and complete.

- (iv) He will check some entries in the agricultural stock list and reference list.
- (v) He will decide all disputes. All disputes should be decided, except in case of compromise, on the principle of present possession.
- (vi) He will test the khewat before leaving the village, and, in case any entries are found incomplete, will complete them.
- (vii) He will then write his inspection note in English in the note-sheet (*yaddast*). He should avoid general expression such as "work very bad," and should instead note the particular defects which he has found. He will make a simple translation of his inspection note in the vernacular directing the amin's attention to the defects in his work.
- (viii) He must remember to initial all the plots completely tested by him.

323. If very important errors are found in an Inspector's *halka*, the Assistant Settlement Officer should send in a special note for orders to the Assistant Settlement Officer in charge.

324. In deciding internal disputes, the Assistant Settlement Officer must invariably note in the order, which he writes in the dispute list, the plots covered by his decision. He will briefly record the reasons for the decision, and will sign and date all documents produced in evidence before him. He will translate his order into the vernacular,

in such a way that the amin may clearly understand what entries have to be made in the record in accordance with the decision.

Admissions by parties to the dispute should be recorded carefully with the names of the party who made them.

325. Other points to be observed at an inspection are—

- (1) That the writing is neat and legible.
- (2) That all corrections are initialled.
- (3) That the tenants thoroughly understand that they must pay no money to the amin or Inspector, and that, though they must, where possible, supply food, that food must be paid for at bazar rates.
- (4) That the amin is making due enquiries about the *pattidars* or shareis in the holdings, and that the names of minors or absentees are not being improperly suppressed.
- (5) That all disputes are entered directly they arise, and that the orders passed in the dispute list are being promptly carried out.

326. Returns Nos. I and II (see rule 222 of Chapter X above) must be despatched to the cadastral headquarters on the morning of the 10th and 25th of each month, together with a copy of the first six columns of Register I. Register III will be also kept up by all Assistant Settlement Officers.

327. Kanungos and Head Inspectors will be guided, in making their inspections, by the rules laid down above for Assistant Settlement Officers, so far as they are applicable; but they will not decide disputes or correct the khewat, unless they are empowered to do so.

328. The Inspector will be held responsible for the quality of the work done by amins working in his *halqa*. In case he finds the khanapuri of any amin very defective, he will report the matter at once to the Assistant Settlement Officer of his Circle, who will pass orders.

329. When khanapuri is in full swing, the Inspector will inspect the work of two khanapuri amins, and will test the entries, with respect to at least 30 plots daily. He will put his initials and date against all plots tested. He will also scrutinise the records whenever he inspects, and will correct all palpable errors, due to carelessness or ignorance on the part of the amin. He will see that entries are made in their appropriate columns, and that the amin understands the khanapuri rules.

330. The Inspector will make a list of the defects found during inspection, and will make a note of them in the *yaddast*. He will also note the number of plots tested by him, with the result.

The Assistant Settlement Officer will recheck two or three plot numbers that have been checked by the Inspectors, whenever he inspects.

331. The number of plots tested during the season by all agencies should not be less than 12 per cent. of the total number.

332. Officers in charge of settlements should satisfy themselves as to the accuracy of the entries in the preliminary records by assiduous testing of the *khanapuri* at the early stages of the operations. When the work is advanced, they should test as much of the *khanapuri* as is possible without detriment to other work, and should carefully supervise the work of the Assistant Settlement Officers deputed to test *khanapuri*, by a rigid scrutiny of their diaries and returns.

333. Settlement and Assistant Settlement Officers should, at all stages of their work, endeavour to ascertain agricultural and economic facts, such as the kind of soil, the crops grown, the rotation of the crops followed, the outturn per acre, cost and method of cultivation, village customs, and so forth. They should keep note-books in which all such facts, whether observed personally or elicited by enquiry, should be entered on the occasion of their visit to each village.

334. Special attention should be paid at the *khanapuri* stage to the correct record of village names. The Inspector should keep a manuscript register for his *halka*, containing the following information :—

- (1) Name and number of village in Colloctorate Register.
- (2) Name and number of village in the Revenue Survey.
- (3) Local name as entered in the *kharsa*, *khatian*, and *khewat*.
- (4) Local name in vernacular as confirmed by the Assistant Settlement Officer in the transliteration in English.

The first three items will be filled up in vernacular by the Inspector, who should be made responsible that the local name of the village is correctly entered in the *kharsa*, *khatian* and *khewat*. At the time of inspecting *khanapuri* and deciding disputes, the Assistant Settlement Officer should ascertain and record the local name in vernacular and English on the *yaddast*. The camp clerk will complete the Inspector's register from the entries in the *yaddast*.

The Inspector's manuscript register thus completed will be made over later to the Recess office where they will be again carefully checked before village names are put on the maps to be sent for reproduction. A further check may be prescribed at attestation but it is desirable that the check should be complete before maps are reproduced for attestation and that as few changes as possible should have to be made afterwards.

REGISTER No. III.

335. *Diary of Cadastral Khanapuri Officer.*

[Copy to be sent once a fortnight to the cadastral head-quarters.]

Date.	Name of village.	Serial number of sheet.	Name of amin.	QUADRILATERAL LINES CHECKED ON GROUND.		
				Lines.	Chains.	Links.
1	2	3	4	5	6	7

PERSONAL PARTIAL.			INDEPENDENT PARTIAL.				
Lines.	Chains.	Links.	Lines.	Chains.	Links.	Block.	
						Number of plots.	Acres.
9	10	11	12	13	14	15	16

KHANAPURI TEST.		INTERNAL DISPUTES.				Number of bound-ary disputes decided.	Name of villages of which khewat prepared.	REMARKS.
Number of plots khans-puried up to date of visit.	Number of plots complete-ly tested during visit.	Disputes instituted up to date of visit.	Disputes decided before visit.	Disputes decided during visit.	Balance undecid-ed.			
16	17	18	19	20	21	22	23	24

CHAPTER XIII.

The Head-quarters Cadastral Camp.

336. In large surveys it will be necessary during the field season, unless the Settlement head-quarters is close to the area under survey, to maintain a cadastral camp at some central and convenient place in the area. In the camp will be stocked the season's supply of instruments, forms, tents, medicines, stationery, camp furniture, etc. The camp will be in charge of an Assistant Settlement Officer.

Staff.

337. The staff of a cadastral field camp for an area of 800 square miles

will be—

One Head Clerk and Accountant.
 One Assistant Clerk.
 One Head Draughtsman.
 One Assistant Draughtsman.
 One Head Estimator
 One Assistant Estimator.
 One Record-keeper.
 One Nazir.
 One Store-keeper.
 Three Pay Distributors.
 Four Office Peons.
 One Sweeper.

Copyists, temporary additional peons and pay distributors may be appointed when required, with the sanction of the Settlement Officer.

338. (a) The Assistant Settlement Officer, Head-quarters Cadastral Camp, will be in charge of the work of the head-quarters office during the field season, including accounts, correspondence, returns, forms, stationery, instruments, and all miscellaneous work performed at head-quarters.

(b) He will dispose of notes for orders on professional cadastral matters, which will be referred to him direct by the Circle officers. His functions in this respect will be to advise on all points of survey. In case he considers that the survey of a sheet should be rejected as bad, he will send the record of the *partals* to the covenanted Assistant Settlement Officer in charge. If the latter agrees, the sheet will be finally rejected. If he does not agree, the matter will be referred to the Settlement Officer. On all other matters connected with cadastral survey, the opinion of the Assistant Settlement Officer in charge, Head-quarters, should, ordinarily, be accepted; but, if the covenanted Assistant Settlement Officer in charge disagrees on any point, he may refer it to the Settlement Officer.

(c) He will scrutinise the records of final *partals*, the field books of personal *partals*, and bring to the notice of the covenanted Assistant Settlement Officer in charge any important defects, particularly inadequate *partalling* and defective inspection.

(d) He will also scrutinise the maps and similarly bring to notice defects in inking up, numbering, cleanliness, etc.

(e) He will check all requisitions for forms and stationery received from Circle officers. If he finds them extravagant, he should send what he considers reasonable, and refer the matter to the covenanted Assistant Settlement Officer in charge, who will pass final orders.

(f) He will see that the rules regarding the storage and distribution of instruments are being carried out, and that the stock-book is being kept up to date.

(g) He will supervise Settlement *Badar* work received during the field season (see rules 412 to 419).

(h) He will supervise the finishing of the maps and area extraction done during field season (see rules 437 to 442).

(i) He will make a detailed examination of all independent *partals*, as the maps and *partial* records reach head-quarters. He should compare as many *partial* traces with the maps as possible, and bring to the notice of the Settlement Officer any careless or imperfect work. He will initial all *partial* records examined by him.

339. Before the commencement of the field season the names of all

Registration of amins. Head Inspectors, Inspectors and amins will be registered in the prescribed form (*vide* rule 349). Each amin will receive a number, as he is registered. The registration should be done by the Assistant Settlement Officer in charge, Head-quarters Cadastral, or by another Assistant Settlement Officer to whom this duty has been assigned, with the sanction of the Settlement Officer.

340. Head Inspectors and Inspectors will give security to the

Security deposits. amount of Rs. 50, and amins to the amount of Rs. 20. They will execute the necessary bonds in the prescribed form. In case the Inspectors and amins are unable to furnish the amount of security required, the Assistant Settlement Officer in charge, Head-quarters, may arrange to have the amounts deducted from monthly pay or earnings in instalments of not less than Rs. 5 per month in the case of amins, and Rs. 10 per month in the case of Inspectors. A register (*vide* rule 350) should be kept up showing the details of all such deposits. The amounts should be deposited in the post office as soon as possible.

341. The Head-clerk and assistant clerk will make up all pay bills

Accounts and correspondence. and accounts, and all returns relating to accounts. The Head-clerk will be required to give security to the extent of Rs. 250, and will execute a bond in the usual form.

342. The head draughtsman will attend to the work of the map-

Mapping Section. ping section, preparation of *mujmilis* etc. In addition, he or his assistant will be required to keep up the *partial* registers Nos. 1 and 2 (*vide* rules 51 (a) and (b)). Before making each entry in register No. 2, he should examine the field-books to see that the total length of each line corresponds with that shown in the Inspectors' return, and that the total for each fortnight is correct. He should also check the totals for

independent *partals* shown in the fortnightly returns, before entering them in the register.

343. The head estimator will prepare all other fortnightly and monthly returns, and should be employed in other miscellaneous duties, until the work of area extraction begins.

A copy of the fortnightly return of cadastral field work should be sent each fortnight to the covenanted Assistant Settlement Officer in charge, who should scrutinise the return carefully. He should briefly summarize the result, and send a copy of his notes to each Assistant Settlement Officer and to the Settlement Officer, remarking particularly on the adequacy or inadequacy of *partal* and the progress of the work.

344. The Nazir will be in charge of boundary dispute records and registers [*vide* rules 353 (a) and (b)]. He will also keep the Court-fees register, register of miscellaneous petitions and process-fees register [*vide* rules 352 (a) (b) and (c)]. Other duties may be assigned to him, according to the requirements of each settlement.

He will be given a permanent advance of Rs. 20 for expenditure on contingent charges, and will keep a register in the form used for keeping accounts of contingent expenditure. This register should be put up, daily, for signature by the Assistant Settlement Officer in charge, accounts.

Records.

345. The record-keeper will keep the prescribed registers, (see Chapter XVIII).

Stores.

346. The rules relating to the keeping and distribution of stores of all kinds will be found in Chapter XIX.

347. The following returns will be sent to the Settlement Officer on the 4th of each month, for submission to the Director of Land Records:—

Returns to the Director of Land Records.

1. Return No. I (*vide* rule 354).
2. Return No. II („ „ 355).
3. Return No. III („ „ 356).
4. Return No. IV („ „ 357).
5. Return No. V („ „ 358).
6. Financial Statement („ „ 359).

In case of blank returns, the forms need not be sent. It will be sufficient to note that returns so and so are blank.

348. The following return will be submitted to the Accountant-General, Bengal, direct:—

Return to Accountant-General, Bengal.

1. Detailed statement of total expenditure, Accountant-General, Bengal, Form No. 193 (*vide* rule 360).

349. *Description and qualification roll of Inspectors and Amins,
Season 190 - 190 .*

No.	Name.	Caste.	Father's name.	Residence.	Marks of identification.	Date of entry or enrolment.	Security deposit.	Remarks.	Thumb impression.
1	2	3	4	5	6	7	8	9	10
				Village ...	Height Ft. In.		Rs. A.		
				Post Office ...					
				District ...					
				Village ...	Height Ft. In.				
				Post Office ...					
				District ...					
				Village ...	Height Ft. In.				
				Post Office ...					
				District ...					
				Village ...	Height Ft. In.				
				Post Office ...					
				District ...					
				Village ...	Height Ft. In.				
				Post Office ...					
				District ...					

351(a). HALKAWAR REGISTER OF INDEPENDENT PARTIAL AND PERSONAL PARTIAL BY ASSISTANT SETTLEMENT OFFICERS.
REGISTER No. 1.

[To be kept *halkawar* by Head Draughtsman.]

Circle and <i>halka</i> number.	Serial number.	Name of village.	Number of sheet.	INDEPENDENT PARTIAL.			
				Number of lines.	Chains.	Links.	Date of receipt in head- quarters office.
1	2	3	4	5	6	7	8

ASSISTANT SETTLEMENT OFFICER'S PARTIAL.								REMARKS.
Name of Assistant Settlement Officer.	Number of lines	Chains.	Links.	Quadrilaterals checked.			Date of receipt in head-quarters office.	
				Lines.	Chains.	Links.		
9	10	11	12	13	14	15	16	17

[To be kept by Nazir.]

[illegible]

353(a). REGISTER OF BOUNDARY DISPUTE CASES—No. IV.

[To be kept by Nazir.]

Case number, thanawar.	Commissioner's case number.	1ST VILLAGE.		2ND VILLAGE.		Date of institution.	Date of receipt from Assistant Settlement Officer.
		Village.	Thana.	Village.	Thana.		
1	2	3	4	5	6	7	8

Name of Assistant Settlement Officer.	Date of decision.	Date of recommendation.	Date of filing objection.	Date of despatch to Assistant Settlement Officer in charge.	Date of confirmation.	Date of receipt from Assistant Settlement Officer in charge.	Date of despatch of reference slip to the Circle Assistant Settlement Officer.
9	10	11	12	13	14	15	16

Date of filing appeal.	Date of despatch of records to Settlement Officer.	Date of return of record from Settlement Officer.	DECISION OF APPEALS.				Date of despatch of records to Assistant Settlement Officer, if remanded for further enquiry.	Date of return.	REMARKS
			Upheld.	Modified.	Reversed.	Remanded.			
17	18	19	20	21	22	23	24	25	26

NOTE.—In some cases the Assistant Settlement Officer may not be empowered to decide cases but only to recommend, how they should be decided. The records in such cases should be sent to the Assistant Settlement Officer in charge for decision of the case.

356.

RETURN III.

[Due to the Director of the
Department of Land Records, Bengal, on the 1st
of each month.]

*Settlement Officer's Return of Cadastral Recess Work for the month
of 19 , , District .*

Number of villages Number of sheets Number of fields Area in square miles	Boundary margins compared.		Sheets examined.		Map touched up.
	Villages.	Sheets.	Villages.	Sheets.	
1	2	3	4	5	6
Previously reported					
Finished during month					
Total to date					

Maps cleaned.	BADAR WORK.				REMARKS.
	Received.		Dispose		
	Villages.	Fields.	Villages.	Fields.	
7	8	9	10	11	12

367.

RETURN IV.

[Due to the Director of the Department of Land Records, Bengal, on the 10th of each month].

Settlement Officer's Return of Khanapuri Reccas Work for the Month of 190 , Season , District .

No. of villages No. of fields	Areas extracted.		Areas passed.		Number of khasras completed and areas entered.		Mulan khasra completed.		Crop statements prepared.		Khatians arranged and areas entered.	
	1	2	3	4	5	6	7	8	9	10	11	12
1	V.	P.	V.	P.	V.	P.	V.	P.	V.	P.	V.	P.
Previously												
During month												
Total												
Balance remaining												
Work completed.	Comparison of khasra, khatian, etc.				Records of the Settlement Branch.				REMARKS.			
8	11*				12*				13			
V.	P.	V.	P.	V.	P.	V.	P.	V.	P.	V.	P.	V.

* Columns 11 and 12 which have blank headings may be used for stages of work peculiar to any particular district or settlement, e.g., rent calculation.

[Due to the Director of the Department of Land Records, Bengal, on the 10th of each month.]

359. Settlement Officer's Monthly Financial Statement for the month of 19 .

MAIN SUB HEADS OF BUDGET.	Budget allotment (against each sub- head).	Expendi- ture up to end of previous month or total expendi- ture within the term of the financial year.	Expendi- ture during the month (against each sub- head).	Balance remaining (against each sub- head).	REMARKS.
Settlement Settlement Officer () Assistant Settlement Officer () Local Allowance* Exchange & Impassant's allowance					
Establishment. Of Settlement Officer Clerks (100—200) " (over 200) " (50 and less) • Servants Of Assistant Settlement Officer Clerks (50—100) " (50 and less) Servants					
Temporary establishment— Settlement Officer () Assistant Settlement Officer () Field establishment Job (contract) work Shop establishment Establishment for writing correspondence Police guard					
Carried over					

* Allowances of officers of the Indian Civil Service are to be included in their salaries. Those of the members of the Provincial and Subordinate Civil Service should be provided under this head. **Rule 10 of Civil Service Regulations, Article 24 (c) (3).**
Column 6.—In this column enter any request for large allotment or redistribution of allotment between main heads, or order to surrender a portion not likely to be required.

MAIN SUB-HEADS OF BUDGET.	Budget allotment (against each sub-head).	Expenditure to end of previous month (against each sub-head) from the beginning of the financial year.	Expenditure during the month (against each sub-head.)	Balance remaining (against each sub-head.)	REMA
1	2	3	4	5	6
Brought forward ...					
<i>Allowances.</i>					
Travelling allowances of officers ...					
Ditto ditto establishment					
<i>Supplies and Services.</i>					
Carriage of forms					
Purchase of tents					
Keep of elephants					
Value of medical stores					
Buildings					
Petty construction and repairs*					
Supply of copies to applicants—					
(a) Comparing Clerks					
(b) Remuneration to copyists of—					
(i) Folios					
(ii) Forms or maps					
Cost of books and maps					
Printing at private presses					
Boundary pillars					
<i>Contingencies.</i>					
Cost of country stationery... ..					
Hot weather charges					
Purchase and repair of furniture ...					
Office or ground rent					
Municipal rates and taxes					
Contingencies of copying press					
Telegram charges					
Postage charges					
Repair of tents					
Cost of mathematical instruments ...					
Office expenses and miscellaneous ...					
Total ...					
Unforeseen ...					
Grand Total ...					

* Constructions costing Rs. 1,000 or more should be provided for under the head "Buildings," those costing less than Rs. 1,000 should be included in this head.

CHAPTER XIV.

CADASTRAL RECESS RULES.

Introductory.

361. The recess work of a cadastral camp is done in three main sections, viz. —(1) the Drawing Section; (2) the Area Section; (3) the Khasra Section.

In the Drawing Section, the maps are finished and prepared for despatch to the Bengal Drawing Office for reproduction; in the Area Section, field and village areas are computed as the maps are received from the Drawing Section; in the Khasra Section the records are completed, field areas being entered in the khasra, khatian, etc., and statistics prepared of the whole season's work.

362. As the Area Section depends on the Drawing Section for the supply of finished maps, it is of great importance that the work in the Drawing Office should be commenced in good time, and performed methodically, so that no delay may occur in the transfer of sheets to the Area Section for extraction of areas.

363. All maps should be finished before they are sent to the Area Section, i.e.—

- (a) The final comparison of village boundaries and sheet margins should be completed.
- (b) Dispute blocks should be transferred from sheets of village A, to sheets of village B, when necessary, according to the decision of boundary dispute cases (see rule 159).
- (c) The comparison of the map and khasra should be done.

364. When these three processes are completed, the maps are ready for area extraction. The remaining processes to be completed in the Drawing Section can be undertaken when the maps are received back after area extraction. If unfinished maps are sent to the Area Section, village areas cannot be finally passed. In case such maps are received from the Drawing Office, they should be returned at once. Care should be taken to see that the area statements of only those villages, which have finally passed in area, are sent to the Khasra Section.

365. It will ordinarily be necessary to begin the finishing of the maps and area extraction in the field, as soon as the maps begin to arrive at the cadastral camp. Assistant Settlement Officers should be asked to send in the maps to the cadastral head-quarters punctually as soon as the khanapuri of each village is finished.

366. All Inspectors who are available, and selected amins, should then be deputed to do the final comparison of the khasra and the map, including the entry of the conventional signs. A small squad will ordinarily suffice for area extraction. If this procedure is not followed, there will be no records ready for the Khasra Section at the end of the field season; and the khanapuri amins, who are usually employed in

this section, will be obliged to wait a month or more before they are re-employed.

It may be laid down as a working rule, that the area extraction of one-fifth of the villages should be completed before the end of the field season.

367. The work of the Khasra Section should not be commenced in the field. A great deal of supervision is required to secure correctness, and unless an Assistant Settlement Officer is employed for this purpose, the work will probably not be done satisfactorily.

368. *Care and custody of the maps.*—As soon as a map is received from an Assistant Settlement Officer after the completion of the field work, the head draughtsman will examine the sheets carefully to see that all ink and grease stains, and tears have been initialled by the person to blame. In case he finds any stains or tears not initialled, he will initial them himself, reporting the fact at the same time to the officer in charge of the Drawing Section, in order that the responsibility may be fixed. The person found responsible should be fined. The maps are then entered in the general register (see Chapter XV).

As soon as the recess work proper begins, after the completion of field work, map muharrirs will be appointed, one for the Area and one for the Drawing Section. They will be in charge of the maps. When giving or returning sheets, they will invariably take receipts from each other, and from the persons to whom the sheets are distributed, in their respective sections. They will also examine the maps before giving receipts for them to see that there are no stains or tears which have not been initialled. In case they find any such stains or tears, they will report to the Assistant Settlement Officer of their respective sections, in order that the person responsible may be fined. If they fail to do so, they will themselves be held responsible and will be fined.

All draughtsmen and other persons employed in work on original maps will be required to keep them clean and neat. For this purpose they will place a sheet of clean paper underneath the map, and also a piece of clean paper underneath the band, so as to prevent the face or back of the map from being soiled. The Assistant Settlement Officer of the Section should see that this rule is being carried out.

CHAPTER XV.

DRAWING SECTION.

FINAL COMPARISON OF VILLAGE BOUNDARIES.

369. The first process to be undertaken in recess is the final comparison of village boundaries.

The procedure is as follows:—

A trace is taken on tracing paper of the boundary of one village, and this trace is compared with the boundary of the adjoining village.

If the two agree, the village boundaries are inked in, in black, the lines being made double the thickness of the field boundary lines. If discrepancies are discovered, the Inspector's boundary *milan* book is consulted and a reference is made to the Assistant Settlement Officer in charge of the section, who will pass orders.

370. The Assistant Settlement Officer of the section may pass the following errors, selecting as final one or other of the boundaries as he thinks best:—

- (a) Errors up to 20 links, when the boundary line or point at which the discrepancy occurs is situated in cultivated lands.
- (b) Errors up to 50 links, when the point at which the discrepancy occurs is situated in very jungly or difficult country.

In case the error exceeds these limits, the common boundary of the villages at the place where the discrepancy occurs will have to be re-surveyed, an amin being deputed for the purpose with the necessary prick-off.

371. In case the Assistant Settlement Officer is of opinion that an Inspector has failed to do the comparison of the boundaries in the field, and has falsified his boundary *milan* book to conceal the fact, he will report the case specially to the Settlement Officer. In other cases he may fine the Inspector responsible for defective or careless comparison.

372. The draughtsman, at the same time that he compares the boundaries, will enter the conventional signs, showing whether a river or road running along the boundary is common to the two adjoining villages, or whether such river or road appertains to one village only. These signs are given in the specimen sheet of conventional signs. He will consult the khatian in which the road or river is entered, before making the entries.

373. He will check all *thoka* lines, and then ink them in. *Thoka* lines should be of the same thickness as village boundary lines. To check a *thoka* line, the draughtsman will take a trace of the village boundary, starting from the trijunction point and tracing the boundary on both sides of the trijunction point, as far as the nearest traverse stations. This trace is then fitted on to the boundary of one or other of the adjoining villages, and the direction of the adjoining village boundaries noted on the trace. This latter line is then compared with the *thoka* line of the first village, as shown on the map.

The Assistant Settlement Officer of the section, in order to test the draughtsman's work, will re-check daily the *thoka* lines of at least three selected villages. He will initial the *thoka* lines so checked in pencil.

374. During boundary comparison the *tarmim* of boundary dispute decisions will be also completed.

The draughtsman, whenever he finds that a boundary dispute decision has not been entered on the map, will send for the boundary dispute trace (Part I) and will proceed to show the line decided on

(i.e., the black dotted line in the trace) as the correct boundary on the sheet concerned.

To do this, he will place the dispute trace on a tracing glass. He will then place the sheet over it in correct position, and mark the village boundaries, and ink them in, as well as the boundaries of such fields as have not been inked in at khanapuri.

In case a block has to be transferred from a sheet of village A to village B, he will place the sheet of village A on the tracing glass and trace the block with all the fields included in it, on to the sheet of village B in correct position. When dispute blocks or parts thereof are transferred from one sheet to another, the tracing should be examined, plot by plot, by a second draughtsman, who will ink in the village and field boundaries, when the examination is completed. This draughtsman will also enter the correct khanapuri numbers in the transferred fields, consulting the khanapuri trace for the purpose (see rule 159). He will also enter any corrections that may have been made at khanapuri in the khanapuri trace, such as divisions of fields.

375. The comparison of boundaries should ordinarily be done *halkawar*, all the village maps of one *halka* being consigned to one draughtsman for completion, care being taken that no draughtsman obtains the maps of the *halka* which he supervised as an Inspector during the field season.

MOKABILA OR COMPARISON OF THE MAP AND KHASRA.

376. When the comparison of boundaries is completed, the map, will be compared with the khasra, plot by plot. The muharrir takes the *khassra*, reads out the number of each plot and the entries according to which the field is classified, e.g., *parti kadmi*, *parti padid*, *jungle sakhua*. The draughtsman enters the appropriate conventional signs, if any, in the corresponding plot in the map (see specimen of conventional signs, rule 181.)

377. The draughtsman will see at the same time that no plot has been left unnumbered at khanapuri. If any such unnumbered plot is found, the draughtsman will compare the khasra and the khatian. It will usually be possible to discover from the boundaries of adjoining plots, as given in the khatian, (a) to whom the plot belongs; (b) its proper classification. The draughtsman will bring all such cases to the officer in charge of the section, who will pass orders. If it is found that the plot should have been surveyed with an adjoining field, the sign 8 will be drawn across the line dividing it from the former field. If however it is found that it belongs to a separate cultivator, or that its classification is distinct, it will be numbered. The number will be the next after that of the last field entered in the khasra of the village.

The number will be entered in the plot on the map and in the khasra.

A line will be drawn over the number in the khasra, and over this line the number of an adjoining field will be entered (see rule 256 (?)).

The *khanapuri* of the plot will be subsequently completed by the *muharrir* who arranges the record in the Khasra Section. The draughtsman will enter all such fractional numbers found in the *khasra*, as well as those entered in recess, in the right hand lower corner of the map.

378. During *mokabila* the margins of adjoining village sheets will be compared. If discrepancies are found, the draughtsman will refer each case to the officer in charge of the section, who will pass orders.

The draughtsman will also see—

- (a) That plots on the margin have been numbered in both sheets
- (b) That these numbers agree unless in cases where margins have been closed, thus making separate plots.
- (c) He will ink in any dots which have been left in pencil by the *khanapuri amin*, to denote that the margin has been closed.

In case it is found that the inspector has not done the comparison of the sheet margins in the field, the officer in charge of the section will report the facts to the Settlement Officer.

379. With reference to the entry of the conventional signs, selected *amins* as well as Inspectors may be employed on the work. They should be first made to practise with the specimen sheet of conventional signs before them. When they have attained the requisite degree of proficiency, they may be employed. The officer in charge of the section will examine the conventional signs in a number of village maps *daily*, and will take care to see that the draughtsmen are doing the work carefully.

PLOTTING ON THE 32 OR 64-INCH SCALE.

380. In cases in which the plot numbers of village sites, which have been surveyed on the 16-inch scale, are indistinct or illegible owing to the smallness of fields, the site or part of it should be plotted outside the village boundary on the 32 or 64-inch scale. Ordinarily the 32-inch scale will suffice.

The procedure is as follows:—

A quadrilateral is drawn around the village site or part of it. This quadrilateral is then plotted outside the village boundary in pencil, its sides being made twice as long as the sides of the quadrilateral described round the site itself.

The position of a field corner or two is first fixed in the larger quadrilateral.

Thus—

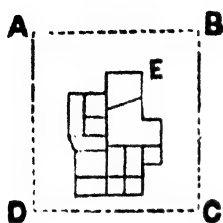


Fig. I.

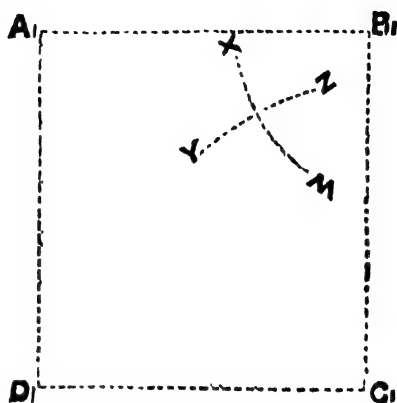


Fig. II.

Suppose it is necessary to fix the correct position of the point E, A, B, C, D (Fig I), being the quadrilateral described round the village site, and A₁, B₁, C₁, D₁, (Fig II) being the quadrilateral described outside the boundary. Take off the distance from B to E with the compass, double this distance. With B₁ as centre and the latter distance as radius, describe an arc of a circle WX. Then take off the distance from C to E, double it, and describe an arc of a circle (YZ) with C₁ as centre, and the double distance as radius. The point where the two arcs intersect is the correct position of the point E in the 32-inch plot.

Other field corners may be similarly fixed. From these field corners, the corners of all other fields inside the site may be fixed, the field corners being joined, until the whole site is plotted.

381. The double plotting will be checked by another draughtsman. It will be sufficient to draw the diagonals of the quadrilaterals, and compare the perpendicular distances of the field corners from the diagonals. The distances on the 32-inch plot ought, of course, to be double the corresponding distance on the 16-inch plot. The *katana* should also be compared and checked. The draughtsman who does the check will compare 10 per cent. of the field corners and *katana*. When he has done so, if he finds that the plotting has been done correctly, he will ink it up, putting in, at the same time, the correct *khasari* numbers. He will also give a reference, e.g., B *tola* Rampur surveyed on the 32-inch scale.

382. The Assistant Settlement Officer of the section should examine the maps, soon after they arrive at head-quarters, to see if any double plotting is necessary. He will give orders as soon as possible, and appoint a small squad of selected *amins* to do the plotting. During the progress of the work, he will examine daily the plotting of one

site, selected at random. He should also see that the double-plotting is not done too close to the edges of sheets

383. During *khanapuri* the amin prepares a list of all the objects of interest in a village. This list which is called the list of notable

Reference slip writing.

objects, is sent to the Drawing Office after the completion of *khanapuri*.

From this form, a vernacular writer notes on the sheet in the vernacular, the plot numbers of the fields in which the objects or places of interest are situated, with their description, *e.g.*, No. 385, *hargari*.

This list must be written very carefully and neatly in thick black Indian ink.

Reference slip writing is usually done by Inspectors and selected amins. It should be commenced as the villages are finished from boundary comparison and *mokabila*.

384. The head draughtsman will next print on the map, the map headings and North Point. The map

Map headings.

headings should be printed on the top left side of the map, with the North Point close and parallel to them on the left.

385. When the above processes are completed, a draughtsman will examine the maps, plot by plot, and "touch-up" or re-ink all faint

Touching-up, etc.

or broken lines or numbers which he discovers in the course of his examination. Very thin lines should also be thickened. The draughtsman should also ink in the conventional signs for all true trijunctions and traverse stations situated on or near the village boundary on the margins of sheets.

The officer in charge of the section should examine the work done, day by day, and should see that the ink used is freshly made, of the requisite thickness, and very black. The draughtsman should be made to test the consistency of the ink daily on a slip of paper, before proceeding to touch-up the maps.

If these precautions are not taken, the work will be of little use, and the faint lines and numbers will not reproduce satisfactorily. If the inking in the field has been done well, very little touching-up will be necessary.

This work is usually done by Inspectors and selected amins on fixed pay.

386. After this, the head draftsman will personally check all boundary dispute cases, and certify on the prescribed form that the *tarmim*

Final checking,

of the dispute has been done correctly in the village map, according to the decision of the officer who decided the dispute. He will also re-examine the boundaries of adjoining villages, and all *thoka* lines, and will be held responsible for bringing to the notice of the officer in charge of the section, all instances of careless or incomplete boundary comparison and incorrect *thoka* lines.

387. The map is then cleaned with the pith of fresh bread. A muharrir places a handful of fresh crumbs on the sheet and rubs them

Cleaning of maps.

with his hand over its surface. He continues the process until the sheet is cleaned and all dust stains are removed.

The muharrir will next, with the help of a soft rubber eraser, remove all pencil marks. Ink stains will be removed by the head draughtsman of the section.

For this purpose he may use a rubber, or a steel eraser; but he must be careful not to attempt to erase any stain which lies directly over any line or number on the map. If he does so, he will reduce the thickness of the paper at that spot, and the lines or numbers will not reproduce clearly, if at all.

When removing ink stains, great care must be taken to scrape away as little as possible of the paper from the surface.

388. Whenever a sheet is found to be so soiled or torn as to be unfit for reproduction, a trace will be made.

The trace will be made by a draughtsman with the help of a tracing glass, and will be examined and corrected, when necessary, by a second draughtsman.

The officer in charge of the section will examine the sheets and pass orders as to which sheets are to be traced. He should remember, however, that, apart from the additional expense incurred, it is advisable that the original maps should be the basis of the reproductions, and that all tracing for reproduction is *per se* therefore objectionable. In all cases when a trace has been prepared, the original map should be completed in boundary comparison, comparison of the khasra and map, and in map headings. It should be also sent to the Bengal Drawing Office with the trace.

389. At the end of the field season the officer in charge of the

Entry of name of thana and thana number.

Drawing Section will have *mujmilis* of the past season's work prepared. These *mujmilis* will show all the villages contained in one thana jurisdiction, with their names, which should be correct as far as possible. He will send these *mujmilis* to the Settlement Office. The Settlement Office will number these villages serially, noting the numbers on the *mujmilis*, which should be then returned to the Drawing Office without delay.

390. As the map headings of each sheet are printed in the Drawing Office, the head draughtsman will enter on the village maps the name of the thana and the serial number shown in the *mujmili* or thana number, in ink. The other headings will not be filled in.

391. As the maps are completed and cleaned, they will be sent in batches, to the Bengal Drawing Office for reproduction by the Vandyke process. It will be usually sufficient to indent for three copies of each sheet, one copy for attestation and the other two for use in the Drawing Office. All sheets should be sent to the Bengal Drawing Office before the end of the month of August.

392. As soon as the Vandyke copies, together with the original maps, are received from the Bengal Drawing Office after reproduction, the copy reserved for attestation purposes will be "touched-up." All

Touching-up after reproduction.

broken and indistinct lines and faint numbers must be re-inked, so as to make the lines and numbers perfectly clear and legible. The original map should be referred to when necessary.

The following additions will also be made:—

- (a) The village name will be entered in the map headings.
- (b) Adjoining village names will be entered on the sheet close to the boundary, from *thoka* line to *thoka* line.
- (c) The numbers of adjoining marginal sheets will be noted on the margin.

As the attestation copies are not meant for final reproduction, any ordinary amin or muharrir will be able to complete these processes. When they are completed, the copy of the maps will be sent to the Settlement Office.

393. The original maps are returned from the Bengal Drawing Office with the Vandyke copies. They will be signed by the Settlement Officer, as Superintendent of Survey, or by an Assistant Superintendent of Survey, to whom he may delegate the duty, before they are sent to the Bengal Drawing Office for final reproduction.

THANA MAPS AND BOUNDARY MARK MAPS.

394. During recess, thana maps and boundary mark maps for the past season's area will be prepared. The maps will be on the 2-inch scale, unless the villages are very small, when it may be necessary to use a larger scale. The maps for both purposes will be prepared together, thana by thana.

395. Each map will show the following details:—

- (a) The correct cadastral boundary of all villages included in the thana.
- (b) The correct position of all true trijunction marks. The conventional sign for true trijunctions is Δ . If other than trijunction boundary marks have been erected they will also be shown thus— \square
- (c) Main and other roads, *pucka* roads being distinguished from *kutcha*.
- (d) Rail roads and canals.
- (e) Rivers and other main water channels.
- (f) Ferries with number of boats.
- (g) Public buildings, such as Post and Telegraph offices.
- (h) Market places. The dates on which they are held should be noted.
- (i) Such other details as may be prescribed by the Director of Land Records, in consultation with the Superintendent of Provincial Surveys.

When a stream forms the boundary of a village both banks will be shown, if possible. A reference should be given on the margin of the map explaining the entries under the heads (f) (g) (h). In other cases, the entries should be made according to the specimen of conventional signs in use.

396. The procedure for preparing the maps is as follows:—

Before the cadastral recess opens, the Superintendent of Provincial Surveys will supply the Settlement Officer with a basis for the thana map, consisting of a traverse plot made from the final co-ordinates of village trijunctions from the origin of the district. The traverse plot will be on the 2-inch scale, and will have the position of circles of latitude and longitude shown on it.

397. As soon as the Vandyke copies of the past season's maps are received in the office, the necessary cadastral details of each will be pentagraphed down from them to the 2-inch scale. Each village will be pentagraphed on a sheet of paper on which will be entered the name of the thana and the name and thana number of the village. This trace is then placed on a tracing glass, and the traverse *mujmili* previously prepared placed over it. The traverse *mujmili* is then moved about, until the traverse boundary of the particular village fits into the cadastral boundary, trijunction point being made to correspond with trijunction point as accurately as possible. The cadastral boundary of the village and the required details are then traced in the traverse *mujmili*. The process is continued until the map for the whole thana is prepared.

398. As each thana map is prepared, the work will be checked. For this purpose, the draughtsman will compare with the proportional compass the distances of important bends and trijunctions from each other on the thana map and the 16-inch map. He will similarly compare the distances of rivers, roads, canals etc., from trijunction points. Discrepancies will be rectified.

The draughtsman, as he checks the work, will also enter the items mentioned in rule 395 (f) to (h), giving necessary references, e.g., Basia Post-office. For this purpose he will consult the reference list in each sheet. He will then ink in the boundaries and all details. He will proceed in this way till the map is completed.

The draughtsman will next enter the names of each village with its *thana* number in the map.

399. Traces of each thana map on tracing cloth will then be prepared, and sent to the Settlement Office by the 10th October each year at the latest. Only village boundaries and trijunction marks need be shown in this trace.

400. When the attestation officer's *mujmili*s are received back, all corrections noted in them will be entered in the thana maps. In addition—

- (a) Correct village names will be entered from the list supplied by the Settlement Office, corrections being made where necessary.
- (b) All trijunction stones will be numbered serially.
- (c) Thana numbers will be checked. If the serial has been altered, corrections will be made.

401. The officer in charge of the Drawing Section should take care that all decisions in appeals and *badars* received from settlement, which affect village boundaries, should be entered in the thana maps as well as in the 16-inch maps.

402. Copies of the final thana maps should then be carefully prepared, and despatched to the Bengal Drawing Office for reproduction by the 30th June. Two hundred copies of the thana maps will be required. The Collector or Deputy Commissioner will be asked to state the number of trijunction mark maps of each thana required by him. The usual number required is 30.

403. The boundary mark maps and thana maps need not be prepared separately. The joint *mujmili* contains all details necessary for both maps. The necessary separation will be done in the Bengal Drawing Office.

404. In the Bengal Drawing Office, the following operations will be carried out :—

A trace, or traces, on tracing paper or sheets of a suitable size for reproduction showing only the following items will be made—
(a) village boundaries in out-line, (b) names of villages, (c) thana numbers of villages, (d) all permanent marks by their symbols, and (e) serial numbering of the marks. The names of small villages should be omitted, if other details would be obscured by their entry. A list of such omitted names with the thana number should be given in the margin of the map.

The trace or traces will then be put through the Vandyke process, and the required number of copies printed on strong bank post paper, and despatched to the Collectors or Deputy Commissioners concerned.

405. In order to provide the thana maps, the thana *mujmili* received from the Settlement Officer must be carefully examined in the Bengal Drawing Office, with a view to deciding whether the 1-inch scale will suffice for these maps. In many thanas the 1-inch scale will suffice, if congested portions are shown on the 2-inch scale on the margin; but in cases where it is feared that the 1-inch scale will be too small, special orders must be asked for.

406. Ordinarily, when the 1-inch scale is sufficient, all the details on the thana *mujmili* with the exception of symbols for permanent marks and the serial numbers thereof, will be photographed down to the 1-inch scale direct on to tracing paper or other paper suitable for direct reproduction, and not less than 200 copies printed.

If the 2-inch scale is found to be necessary, a trace on tracing paper will be made from the thana *mujmili* showing all details, except symbols for stones and the serial numbering of the same, and not less than 200 copies printed.

407. The result of these instructions will be to provide—

- (a) Thirty copies, approximately, of a thana trijunction map on the 2-inch scale, showing village boundaries, village thana numbers and all permanent names, boundary marks with their proper symbols, and serial numbers.
- (b) Two-hundred copies, approximately, of a thana map usually on the 1-inch scale, showing village boundaries, village names and number, railways, main roads, canals, rivers, and other main water channels, ferries, public buildings and market places.

408. (a) In large surveys and settlements, where good draughtsmen are available, the trijunction mark maps and thana maps may be prepared completely in the Cadastral Office and sent to the Bengal Drawing Office for direct reproduction. The sanction of the Director of Land Records should, however, be previously obtained. In case the maps are so prepared, the officer in charge of the Drawing Section will be entirely responsible for the correctness, neatness and finish of the maps.

(b) If it be considered advisable by the Director of Land Records and Superintendent of Provincial Surveys, the preparation of these thana and trijunction mark maps may be done entirely in the Bengal Drawing Office, in which case the Settlement Officer will only be required to supply the pentagraph traces referred to in rule 397. Proofs of the maps will be supplied to the Settlement Officer for the entry of changes made at attestation, and to the Collector or Deputy Commissioner for the entry by the District Engineer of such further details regarding roads, bungalows, etc., as may be required.

409. For the object and utility of the thana maps, see Part V, Chapter I, of the Settlement Manual.

410. As each thana map is completed, an index should be prepared in the form given at the end of this chapter (rule 434). The index should be prepared by a gazetted officer in the cadastral office; it should be checked by the Assistant Settlement Officer in charge, cadastral and then despatched to the Director of Land Records, for having the necessary copies printed.

411. In districts in which there has been no Revenue Survey, columns 3, 5, 6, 7, and 9 should be omitted from the form.

SETTLEMENT BADARS.

412. As soon as attestation commences, lists of mistakes or errors (*badars*) in survey will be received from the various attestation camps. These *badars* as well as any others that may be received from headquarters settlement will be noted in the Vandyke copy reserved for *badars*, and the Vandyke copy will itself be corrected and brought up to date.

413. All *badars* will be disposed of in the order of receipt, unless in cases of special urgency, when the officer in charge of the section may permit a deviation from the rule.

414. It will ordinarily be necessary to appoint a special draughtsman who will be in charge of settlement *badars*. He will be responsible that the *badars* are entered correctly and promptly and will keep the *badars* registers and diaries.

He will make over the *badars* slips dealt with by him daily to the head draughtsman of the section together with the Vandyke copies in which the *badars* have been entered.

415. The head draughtsman will check the mapping of 20 per cent. of the number of *badars* entered in each *badars* slip, and will then turn the Vandyke copies and *badars* slips to the draughtsman in charge of *badars*, who will make them over to the area estimator

for extraction of areas. When they are received back in the Drawing Section, the *badars* slips are returned direct, with an invoice in duplicate to the camp or office from which they were received.

416. The Vandyke copies will be arranged according to *thanawar* serial in boxes or almirahs set apart for the purpose, in order that the draughtsman in charge of *badars* may be able to pick out any particular map required without delay.

417. The officer in charge of the section will supervise the *badar* work carefully. He will see that no delay occurs and that the *badar* slips are despatched punctually, as soon as the corrections are made.

He will also examine the mapping of some *badars* at least twice a week, and will initial in the register of *badars* the numbers so checked by him.

418. The original maps will be kept during attestation in the Record-room of the Settlement Office, and will be corrected from the *badar* Vandyke copy by the Cadastral Office after the completion of *Janch* in Settlement. They will then be returned to the Settlement Office, from which they will be finally despatched to the Bengal Drawing Office. Any *badars* arising after *Janch* will be entered under the personal supervision of the Assistant Settlement Officer at head-quarters Settlement.

419. If any *badars* should arise after the despatch of a sheet, the Bengal Drawing Office will be informed. Duplicate invoices (see Rule 435) will be sent by the Settlement Office, containing columns for the name of the man in the Bengal Drawing Office who corrects the map and the date of correction; and one of the invoices will be returned to the Settlement Office duly filled up. The copy of the map kept with the Collectorate record will be corrected before despatch of the *badar*.

420. The map headings to be entered on each sheet are:—(1) name of village, (2) thana number, (3) thana number, (4) pargana, (5) Revenue survey number, (6) district, (7) scale of survey and the year of survey. As soon as the list of correct village names with their parganas and thanas is received from the Settlement Office, after the completion of attestation the requisite entries will be made in the map headings in the 16-inch sheet. Adjoining village names will also be entered in the space from *thoka* line to *thoka* line, at a distance of one inch from the village boundary. The number of the adjoining marginal sheets will also be noted on the margin of each sheet. The entries of village names and parganas should be done with great care, as mistakes in spelling occur frequently. The Assistant Settlement Officer of the section will examine all map headings, and compare all village and pargana names with the list received from settlement. Before sending the maps to the Settlement Office, for despatch to the Bengal Drawing Office.

421. These *mujmils* are prepared by pentagraphing down the 4-inch traverse *mujmil*. A 1-inch *mujmil* will ordinarily suffice. In case, however, the villages are very small, a *mujmil* on the 2-inch scale will be prepared. The *mujmil* will include all the villages lying in the area to be surveyed. These boundaries should be shown in large red lines. In case there are two camps, a separate *mujmil* will be prepared for each camp.

The *mujmil* or *mujmils* will be sent to the Settlement Officer before the end of September each year.

422. The Settlement Officer will divide the area into circles. The division into *halkas* will be done by the Assistant Settlement Officer in charge head-quarters just before the commencement of the field season, in consultation with the Covenanted Assistant Settlement Officer in charge.

423. The head draughtsman will then prepare one circle *mujmil* for each circle officer and two *mujmils* of the camp area for the Covenanted Assistant Settlement Officer in charge.

Kanungoes, Head Inspectors and Inspectors will prepare *mujmils* of their circles and *halkas*, respectively, as soon as they are appointed to their charges.

424. The accounts for contract work will be made up to the 23rd of each month by the head draughtsman of the section. They will be ready by the 30th of the month, when they will be checked by one of the office accountants.

After check they will be signed by the officer in charge of the section, and sent to the officer in charge of accounts, who will have the bills paid. The men should be paid as soon as possible, but under no circumstances later than the 10th of the following month. All pay will be distributed by the officer in charge of the section personally.

425. (a) The Assistant Settlement Officer in charge of the section will be held responsible for the quality as well the general progress of the work.

(b) He will observe the detailed instructions given in this chapter.

(c) He will move about frequently among the men employed in the section, examining their diaries and noting the quality of their work.

(d) He will pay special attention to the quality of the draughtsmanship and the general finish of the maps.

Standard outturn—

1) Boundary comparison	...	70	lines per day per man
2) <i>Mokabils</i>	...	1,600	plots " "
3) Reference slip writing	...	16	sheets " "
4) Printing of map headings and North Point	...	100	" " "
5) Tracing	...	400	plots " "
6) Double plotting	...	100	" " "
7) Touching up original maps and Vandyke copies	...	1,600	" " "
8) Inking up of double plotting	...	600	" " "

427. Table showing nature of work, and by whom done—

- (1) *Sarhad milan*, done by Inspectors.
- (2) *Mokabila*, done by Inspectors and selected amins.
- (3) Reference slip writing, done by inspectors and selected amins.
- (4) Cleaning of maps, done by selected amins.
- (5) Tracing of maps, done by Inspectors.
- (6) *Thana* maps, done by Inspectors and selected amins.
- (7) Entry of *thana* names and numbers, done by Inspectors and selected amins.
- (8) Settlement *badars*, done by an assistant draughtsman.
- (9) Map headings and final checking, done by head draughtsman.
- (10) Touching up of original maps, done by amins.
- (11) Double plotting, done by amins.
- (12) Touching up of Vandyke copies, done by amins.
- (13) Entering map headings and adjoining village names, done by amins.

Inspectors receive the same rates of pay as during the field season.

Register and Diaries.

428. The following registers and diaries will ordinarily be kept:—

- | | | | |
|---|-----|-------|------------------|
| (1) General register | ... | ... | (Vide rule 429). |
| (2) Progress register | ... | ... | („ „ 430). |
| (3) Boundary dispute register | ... | ... | („ „ 431). |
| (4) Register of <i>badars</i> | ... | ... | („ „ 432). |
| (5) Diary of <i>mokabila</i> draughtsman | ... | („ „ | 433) (a) |
| (6) Diary of <i>sarhad milan</i> draughtsman | | („ „ | 433) (b) |
| (7) Diary of “touch-up” draughtsman | | („ „ | 433) (c). |
| (8) Diary of reference slip writers and <i>thana mujmili</i> draughtsman. | | („ „ | 433) (d) |
| (9) Diary of <i>badar</i> draughtsman | ... | („ „ | 433) (e) |
| (10) Diary of <i>Janch</i> draughtsman | ... | („ „ | 433) (f) |

430. *Progress Register No. II (to be kept by Head Draughtsman).*

DATE.	COMPARISON OF VILLAGE BOUNDARIES.				COMPARISON OF KHASRA AND MAP.			REFERENCE SLIP WRITING.	
	No. of villages.	No. of sheets.	Lines.	Fields.	No. of villages.	No. of sheets.	Fields.	No. of villages.	No. of sheets.
1	2				3			4	

PRINTING MAP HEADINGS AND NORTH POINT.		DOUBLE PLOTTING.						TOUCHING UP.		
		Plotting.			Checking and inking.					
		No. of villages.	No. of sheets.	Fields.	No. of villages.	No. of sheets.	Fields.	No. of villages.	No. of sheets.	Fields.
5		6						7		

CLEANING.			FINAL EXAMINATION OF VILLAGE BOUNDARIES.		THANA MAPS AND TRIJUNCTION MARK MAPS PREPARED.		REMARKS.	
No. of villages.	No. of sheets.	Fields.	No. of villages.	No. of sheets.	Thanas.	Villages.		
8			9		10		11*	12

* A blank column is left for work peculiar to special districts.

432.

Register of Badars No. IV.

Serial No. (a separate number to each original plot).	Attestation Camp num- ber, other camps, or Sadar.	Name of village.	Name of thana.	Thana number.	Map number of the plot before <i>tukra</i> .	The numbers of the new plots after <i>tarmim</i> .	Date of receipt from camp.
1	2	3	4	5	6	7	8

Date of handing over to <i>badar</i> draughts- man.	Name of <i>badar</i> draughts- man.	Date of handing over to <i>janch</i> draughts- man.	Date of return to <i>badar</i> draughts- man.	Date of handing over to area estimator.	Date of receipt from area estimator.	Date of despatch to camp from which received.	REMARKS.
	10	11	12	13	14	15	16

433(a).

Diary of Mokabila Draughtsman.

Date.	Name and number of villages.	Number of sheets.	Name of thana.	Original numbers.	Fractional numbers.	Total.	Daily total.	Number of sheets of which margins have been compared.	REMARKS.
1	2	3	4	5	6	7	8	9	10

433(b).

Diary of Sarhad Milan Draughtsman.

Date.	Number of village.	Name of village.	Name of thana.	Number of sheets.	Number of lines and fields.	Daily total of villages.	Daily total of sheets.	Daily total of lines and fields.	REMARKS.
1	2	3	4	5	6	7	8	9	10

433(c).

Diary of "Touch-up" Draughtsman.

Date.	Number of village.	Name of village.	Name of thana.	Number of sheets.	Number of fields.	Daily total of villages.	Daily total of sheets.	Daily total of fields.	REMARK
1	2	3	4	5	6	7	8	9	10

433(d). *Diary of Reference Slip Writers and Thana
Mujmili Draughtsman.*

Date.	Number of village.	Name of village.	Name of thana.	District.	DAILY TOTAL OF—		REMARK
					Villages.	Sheets.	
1	2	3	4	5	6	7	

433(e).

Diary of Badar Draughtsman.

Serial number.	Number in column 1, Register No. IV (badars).	Number of original plots dealt with.	Number of additional plots after <i>tarmin</i> .	Date of correction of map.	Date of handing over to <i>janch</i> draughtsman.	REMARKS.
1	2	3	4	5	6	7

433(f).

Diary of Janch Draughtsman.

Serial number.	Number in Register No. IV (badars).	Date of <i>janch</i> .	PASSED OR CORRECTED.		Date of return of <i>badar</i> slips and maps to <i>badar</i> draughtsman.	REMARKS.
			Passed numbers.	Corrected numbers.		
1	2	3	4	5	6	

434. *List of Villages contained in Thana* , No.
Subdivision , *District* .

VILLAGES ARRANGED ACCORDING TO THANA SERIAL.						
Serial thana number.	Local name of village.	Collectorate name of village.	Pargana.	Revenue Survey number.	Jurisdiction list number.	Old Collectorate Mauzawar Register number.
1	2	3	4	5	6	7

VILLAGES ARRANGED ACCORDING TO THANA SERIAL.			VILLAGES ARRANGED ALPHABETICALLY.		
Total area in acres.	Name of hamlets.	Remarks.	Local name of village arranged alphabetically.	Thana number of village i.e., number in column 1.	Remarks.
8	9	10	11	12	13

N.B.—This form should be used by District Officers when sending up the lists to be printed.

CHAPTER XVI.

AREA SECTION RULES.

436. The maps, after being completed in the Drawing section, are sent to the area section for extraction of areas.

First extraction.

437. On receipt of the sheets of a village, they are handed over to an estimator for first area extraction.

The village map name and the estimator's name are entered in the general register of the section. The estimator then extracts the area of the village entering the area of each field separately in the prescribed form, called the area statement.

The areas of fields are extracted by means of acre combs, (or tale squares, or computing scales) and the planimeter.

The planimeter is used only for fields, the areas of which exceed 10 acres.

438. The first areas being extracted, the estimator returns the map, with his area statement, to the

Second extraction.

officer in charge of the section, who keeps the first statement under lock and key, and then hands the map over to a second estimator, for a second extraction of the village area.

439. This being done, the two area statements are given to a third estimator, who compares them and extracts the mean area of each

Means.

field. The areas of fields as taken out by the two estimators, must agree within the limits noted below.

If the fields are generally regularly shaped, a more difficult standard should be prescribed.

Differences either *plus* or *minus* : —

	in fields under	·05	cannot be passed.
of	·01 in fields up to	·10	may be passed.
of	·02 ditto	·20	ditto.
of	·03 ditto	·50	ditto.
of	·04 ditto	1·00	ditto.
of	·05 ditto from	1·00 upwards.	

440. The areas of those fields, the mean of which has been passed, are inked up on the first statement.

Badars.

and the remaining field numbers are written on a slip of paper, called a *Badar list*, which is handed over to a fourth estimator, who, after extracting the areas of those fields over again, hands his area statement back to the estimator who extracted the means.

The means estimator compares the last statement with the two former, and inks in (in the first statement) those field areas which pass within the prescribed limits with either of the two statements.

441. The fields that still fail to pass (if any) are entered on

Sadars.

another slip of paper called a *Sadar list*, and handed over to a fifth estimator, who, after extracting their areas, returns his final statement for comparison, with the three former statements, to the means estimator.

The means estimator, if he finds that any two of the areas agree within the prescribed limits of error, will pass the area, and ink it up on the statement. In case any fields still remain, which cannot be passed, the means estimator must himself extract their areas twice over with the comb, and, after passing the mean, ink it up on the statement.

Only estimators who have had considerable experience in area extraction should be trusted to work out means, *badars* and *sadars*.

442. The completed area statement and map are then handed

The planimeter.

over to another estimator, who extracts field areas of over 10 acres, which have not been computed by the former estimators. This is done with the planimeter. The tracer of the planimeter is moved carefully round the plot, the area of which is to be extracted, care being taken to move the tracer straight along the boundaries of the plot from left to right.

Each planimeter working must be done by the operator twice over, and the means extracted to preclude any chance of error.

443. The planimeter working being finished, the map and area

Examination of areas.

statements are handed over to an examiner, who compares them by eye, plot by plot, to see that no errors have arisen in inking up the area statement, or otherwise.

The examiner will generally be an Inspector or amin of experience, who ought to be able to tell, at a glance, the approximate area of any field. Whenever he entertains any doubt about the correctness of a field area, he will re-extract the area of the field, and make corrections, if necessary.

The area examiner should also bring to the notice of the officer in charge of the section mistakes or incomplete work which have not been corrected in the Drawing section, such as unnumbered plots, incomplete or incorrect comparison of sheet margins, imperfect boundary comparison, ink-stains on the map, which have not been initialled, etc. He will be held responsible for doing so. He will note all mistakes detected by him in the prescribed register.

The officer in charge of the section will, when such defects are discovered, send the map back to the Drawing section, with a note specifying the defects. Necessary corrections will be promptly made in the Drawing section. After correction, the map will be sent back to the area section, where necessary corrections will be made in the area statements.

Incomplete statements will *not* be sent to the khasra section.

444. After examination, the statement is handed over to a muharrir, who totals the field areas by tens on a separate form.

Totalling and checking.

When this is finished the statement is handed over to a second muharrir, who totals the field areas by fifteens on another form.

Both muharrirs show the total of the village area in their respective forms.

The muharrirs should be kept separate, and should not have access to each other's work.

As soon as they complete a village total, they should hand their statements over to the officer in charge of the section, who will give the two sets to a checker for comparison. The checker first examines the separate totals for the village. If they agree, he merely signs the totals on both forms. If discrepancies are found, he will make a detailed examination of the total slips, and make necessary corrections, when he has discovered the mistakes.

The area statement and correct total slips are then handed over to the head estimator, who enters the correct total in his pass-book.

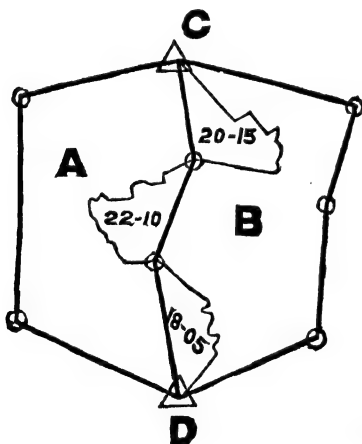
445. While the totals are being done the map should be given to an estimator, who calculates the offsets on adjoining villages. The procedure is as follows:—

Offsets.

Where the cadastral boundary runs *outside* the traverse boundary, the space enclosed between the two boundary lines is regarded as a *plus* quantity with regard to the village; and where the cadastral boundary runs *inside* the traverse boundary, the space enclosed is regarded as a *minus* quantity, with regard to the village.

The areas of these enclosed portions are extracted and *all* the *plus* and *minus* areas are separately totalled, the difference, either *plus* or *minus*, being the offset on the adjoining village.

See figure I.



Thus 20·15 is a *plus* quantity with regard to village A, and a *minus* quantity with regard to village B. In the same way 22·10 is a *minus* quantity with regard to village A, and a *plus* quantity with regard to village B.

The offsets being separately totalled, and their difference arrived at, we find that there is an offset of *plus* 16·10 on village B. When the offsets of village B on village A are extracted, they should come to *minus* 16·10; otherwise the offsets will have to be re-checked until they agree.

Offsets are calculated from trijunction stone to trijunction stone, e.g., from C to D.

The offsets are entered on a 4-inch *mujmili* kept for the purpose. The entering of these offsets on the *mujmili* helps the estimator a great deal, when he is doing the offsets of adjoining villages.

Great care should be taken to see that the offsets as calculated on one village, should be entered line by line on the *mujmili* in blue; when these same offsets are extracted on the adjoining villages, and found to agree, they should be inked up (in black).

Unless this procedure is systematically carried out, mistakes are sure to occur.

46. The offsets being calculated on all the adjoining villages, the whole difference is obtained, and the result is entered in the head estimator's pass-book. The head estimator then brings his statement to the officer in charge of the section for the purpose of passing the village area.

The universal theorem area (previously supplied by the traverse camp), plus or minus the offsets of the villages, is compared with the area of the village as obtained by the totalling of fields described in rule 444.

If the results agree within one per cent. the village area may be passed.

The U. T. areas must be kept under lock and key by the officer in charge personally, in order to prevent all chance of the totals being got at by the estimators.

447. If the area by summation, and the U. T. area do not agree within the proscribed limit of error, the areas must be re-checked until the village passes.

" Out " villages.

The procedure is as follows :—

The head estimator takes the map, and by counting all the squares, and adding fractions of squares (as taken off by the compass) included within the cadastral boundary, he will compute the area of the village. He will compare this area with the area given in the total slips.

(a) If the areas agree, he may ordinarily infer that the mistake has been committed in offset computation. To test this, he will extract the area of the village included within the traverse boundary in the same way. The difference between the two areas thus found will be the area of the offsets of the village. He will compare this difference with the offset area, obtained by the offset worker, when it may be found that a mistake has been committed by the latter. A common source of error is the substitution of a *minus* for a *plus* sign and *vice versa*.

(b) If the area within the cadastral boundary is found to differ materially from the area, as found by the summation of fields, the areas of large plots should first be checked by counting squares as above, when probably the error will be detected. All these tests failing, the area of the village must be re-extracted, plot by plot, by a good estimator. Cases may occur in which the U. T. area supplied by the Traverse Party is inaccurate. These should be referred with full details to the officer in charge of that Party, to enable him to revise the U. T. area.

448. An area estimator will ordinarily be appointed to extract areas of plots entered in the *baaar* Settlement Badars.

slips of settlement *badars* (see rules 419 to 419). On receipt of the maps and *badar* slips from the Drawing Section, the area estimator will extract the areas, noting

them in the prescribed area statement form (*badar* list). He will make over the maps, *badar* slips and statements dealt with, at the close of each day's work, to the head estimator. The head estimator will check 20 per cent. of the plot areas of each *badar* slip, and will similarly make over, at the close of each day's work, the maps, *badar* slips, and statements dealt with to the draughtsman in charge of *badars* in the Drawing Section. Both the head estimator and area estimator will keep the prescribed registers and diaries.

The officer in charge of the section will test the work from time to time to see that (a) areas are being carefully extracted, and (b) the proper percentage of *janch* is being maintained.

449. The accounts for contract work will be made up to the 23rd of each month. Only finally passed villages will be taken into account.

Accounts.

The assistant estimator will prepare the accounts from his registers.

They will be ready by the 30th of each month, will be checked by the head estimator, and handed over to the officer in charge of accounts under the signature of the officer in charge of the section, by the 3rd of the following month. The men will be paid as soon as possible, but not later than the 10th.

When the work of the section is completed, the cost of the area extraction of the total number of fields in the season's area, including extraction of means, *badars* and *sadars* will be calculated, and compared with the total actual expenditure, as obtained from the monthly bills. The result will be communicated to the Settlement Officer.

Supervision of the staff,

450. The officer in charge of the section should move about freely among the men working in the section.

(a) He should distribute the work among the estimators himself and should select the estimators for means, *badars* and *sadars*.

(b) He should test the work of the means estimators frequently, in order to see that field areas are not being improperly passed and that the prescribed limits of error are being adhered to. He should initial each plot number checked by him.

(c) He should pay particular attention to the men employed on fixed pay, examining their diaries and checking their work, to see that a fair standard is being maintained. He should initial and date the diaries, in token of having done so. He should, however, be careful not to demand an excessive outturn of work as, if this is insisted on, the quality of the work is certain to deteriorate.

(d) He should himself re-extract the areas of as many large plots as possible with the planimeter, in order to test the work of the planimeter workers, who should be taken to task for carelessness when necessary. The offset work should also be examined frequently. He is empowered to fine his subordinates up to Rs. 5. Gross breaches of the rules should be reported to the Settlement Officer. Actual falsification should be treated with much greater severity than mere carelessness.

451. Table showing rates of pay and standard outturn.—

Kind of work.	Rate.	Standard outturn.
(a) Contract work—		
	Rs. A.	
Area extraction ...	1 8 per 1,000 plots	1,000 plots per man daily.
Means ...	1 0 „ 1,000 „	1,000 ditto.
Badars and Sadars ...	2 8 „ 1,000 „	1,000 ditto.
Totalling areas ...	0 2 „ 1,000 „	8,000 ditto.
	(two totals.)	

Kind of work.	Rate per month.	Standard outturn.
(b) Fixed pay—		
	Rs.	
Offsets ...	18 per muharrir ...	3 villages, or 12 sheets per man daily.
Planimetry ...	20 ditto ...	60 plots per man daily.
Checking totals ...	18 ditto ...	10,000 ditto.

Examining is done by Inspectors, who draw the same pay as during the field season. The standard outturn is 1,600 plots per man daily.

452. The following registers and diaries will be kept ordinarily :—

Registers and Diaries.

- (1) Attendance Register.
- (2) General Register of area section (*vide* rule 453.)
- (3) Register of individual return of work („ „ 454.)
- (4) Progress Register („ „ 455.)
- (5) Pass-book („ „ 456.)
- (6) Estimator's contract account („ „ 457.)
- (7) Register of "Out" villages („ „ 458.)
- (8) Examiner's diary („ „ 459) (a).
- (9) Offset estimator's diary („ „ 459) (b).
- (10) Total checker's diary („ „ 459) (c).
- (11) Badar area estimator's diary („ „ 459) (d).
- (12) Badar Janch estimator's diary („ „ 459) (e).
- (13) Examiner's Badar register („ „ 460).

Planimeter.				Final examination.		
Worked by.	Numbers.	Date		Name of examiner.	Date	
		Commenced.	Finished.		Commenced.	Finished.
33	34	35	36	37	38	39

TOTALS.						Check totals.		
1st.			2nd.					
Areas totalled by.	Date		Areas totalled by.	Date		Areas totalled by.	Date	
	Commenced.	Finished.		Commenced.	Finished.		Commenced.	Finished.
40	41	42	43	44	45	46	47	48

Offsets.			Passed.	Date of making over to Khaura Section.	Signature.	Date of receipt back from Khaura Section.	Signature.	REMARKS.
Extracted by.	Date.		Name of officer.					
	Commenced.	Finished.						
49	50	51	52	53	54	55	56	57

455.

Progress Register No. III.

Date.	Received from Drawing Section.		1st Working.		2nd Working.		Means.	
	Villages.	Fields.	Villages.	Fields.	Villages.	Fields.	Villages.	Fields.
1	2	3	4	5	6	7	8	9

Nadars.		Examination.		1st totals.		2nd totals.	
Villages.	Fields.	Villages.	Fields.	Villages.	Fields.	Villages.	Fields.
10	11	12	13	14	15	16	17

Check totals.		Offsets.		Areas passed.		Area made over to Khazra Section.		REMARKS.
Villages.	Fields.	Worked villages.	Entered villages.	Villages.	Fields.	Villages.	Fields.	
18	19	20	21	22	23	24	25	26

458.

Register of Out villages No. VI.

Date.	Serial number.	Register number.	Name of village.	Name of thana.	Sub-circuit.	Main circuit.	Date of disposal.	How disposed of.	Date of passing.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11

[The head estimator should note, in the column "How disposed of" whether he has given map to an estimator to have the area re-extracted, or to an offset estimator, or what other action has taken. Columns 1 and 9 should be compared by the officer in charge of the section, to see there is no undue delay.]

459(a).

Examiner's Diary.

Serial number.	Date.	Register number.	Name of village.	Name of thana.	Number of plots.	Daily total.	REMARKS.
1	2	3	4	5	6	7	8

459(d).

Badar Area-Estimator's Diary.

Serial number.	Number in Register No. IV (Drawing Section).	Name of village.	Name of thana.	Thana number.	Map number of each plot caused by the <i>badar</i> after <i>tukra</i> .	AREAS.			
						Old.		New.	
						A.	D.	A.	D.
1	2	3	4	5	6	7		8	

DIFFERENCES.				Name of <i>badar</i> corrector.	Date of <i>badar</i> extraction.	Date of handing over to <i>janch</i> estimator.	Signature of <i>janch</i> estimator.	REMARKS.
+		-						
A.	D.	A.	D.					
9	10	11	12	13	14	15		

Partial BY ASSISTANT SETTLEMENT OFFICERS.

[illegible][illegible]

484.

Field areas--First totals.

Survey number.	Name of village.	By tens	AREA.		TOTAL.	
			Acres.	Dec.	Acres.	Dec.
1	2	3	4	5	6	7
		10				
		20				
		30				
		40				
		50				
		60				
		70				
		80				
		90				
		100				
		10				
		20				
		30				
		40				
		50				
		60				
		70				
		80				
		90				
		100				

Survey number.	Name of village.	By tens	AREA.		TOTAL.	
			Acres.	Dec.	Acres.	Dec.
8	9	10	11	12	13	14
		10				
		20				
		30				
		40				
		50				
		60				
		70				
		80				
		90				
		100				
		10				
		20				
		30				
		40				
		50				
		60				
		70				
		80				
		90				
		100				

465.

Field areas—Second totals.

Survey number.	Name of village.	By fifteens.	AREA.		TOTAL.	
			Acres.	Dec.	Acres.	Dec.
1	2	3	4	5	6	7
		15				
		30				
		50				
		65				
		80				
		00				
		15				
		30				
		50				
		65				
		80				
		00				
		15				
		30				
		50				
		65				
		80				
		00				
		15				
		30				
		50				
		65				
		80				
		00				

Survey number.	Name of village.	By fifteens.	AREA.		TOTAL.	
			Acres.	Dec.	Acres.	Dec.
8	9	10	11	12	13	14
		15				
		30				
		50				
		65				
		80				
		00				
		15				
		30				
		50				
		65				
		80				
		00				
		15				
		30				
		50				
		65				
		80				
		00				
		15				
		30				
		50				
		65				
		80				
		00				

466.

OFFSET FORM.

Sub-Circuit No.

Survey number.	Name of village.	Station letter.	OFFSETS.			
			+		-	
			Acres.	Dec.	Acres.	Dec.
1	2	3	4	5	6	7

Main No.

Survey number.	Name of village.	Station letter.	OFFSETS.			
			4			
			Acres.	Dec.	Acres.	Dec.
8	9	10	11	12	13	14

CHAPTER XVII.

KHASRA SECTION.

470. An Assistant Settlement Officer will be in charge of the khasra Section. He will have under him one Kanungo or Head Inspector with a Muharrir. The Muharrir will keep the prescribed registers, except those relating to accounts which will be written up by the head inspector or Kanungo himself. The Head Inspector or Kanungo will, however, supervise the Muharrir's work, and will be held responsible for the correctness of all entries in the registers.

471. The staff will consist of Muharrirs called *tartib* Muharrirs, selected mainly from among the amins, who did *khanapuri* during the field season. The entry of the areas in the records and the preparation of the *terij* and statistical statements will be done by them. Their work will be examined and thoroughly checked by a staff of selected Inspectors, who will be held responsible for any mistakes subsequently discovered in the records or statistical statements. The Muharrirs will be paid at contract rates. The Inspectors will be on fixed pay.

472. In order that the work may be fairly distributed, the Assistant Settlement Officer of the section will himself receive all passed area statements, and will himself distribute them to the Muharrirs. He will give each Muharrir the statement of first workings only, keeping the statement of second workings, first and second totals and other attached papers under lock and key.

473. The Muharrir, on receipt of the area statement, will go to the record-room and ask for the record of the village. He will examine the record carefully, and compare it with the list of contents supplied to him by the record-keeper. When he satisfies himself that the list is correct, he will sign the receipt register, and will be responsible for the record, until it is returned again to the record-room.

474. The Muharrir will first scrutinise the *qudast*, to see that all orders passed by the Assistant Settlement Officer in the field have been carried out by the *khanapuri* amin. He will make necessary additions or corrections, and initial them.

475. The areas are then entered, plot by plot, from the area statement in the area column of the khasra.

The areas are totalled by tens, and noted in pencil in each khasra page. These areas are then noted in a slip of paper and totalled, and the total village area computed. When this is done, the Muharrir will bring the statement showing the village area to the Assistant Settlement Officer in charge of the section, who will compare the area shown in it with the area noted in the total slips received from the Area Section. If the totals agree, the Assistant Settlement Officer will initial and date the statement, noting the village area in figures also. If the totals do not agree, the Assistant Settlement Officer in charge of the section will make a detailed examination of the Muharrir's totals by fifties and totals by tens, comparing them with the totals by fifties and tens in the area-total slips, until the error is located. The Muharrir will then make necessary corrections, and correct the village total. He will receive back the statement

prepared by him and file it with the record. The Muharrir will also note in the khasra in pencil the totals for each twenty-plot number. This will be found useful in checking the *chitta* crop statement (see below).

476. The areas of each plot of land are then transferred to their appropriate columns, according to the khasra headings. The Muharrir will be careful to see that each crop has been entered in its proper seasonal column, according to the *khanapuri* rules, and that the uncultivated lands have been properly shown under the headings "Culturable" and "Unculturable." When two or more crops of different seasons are sown in a field separately or mixed (*makhlut*), the area under each crop must be shown separately. Examples:—

- (1) *Gondli* is sown in 12 annas and *til* in 4 annas of a field. The area of the field being 8 acres, 2 acres will be shown as under *til* in the *rabi* column, and 6 acres as under *gondli* in the *bhadoi* column. If the crops had been sown mixed had the area of the field would be shown under each crop, unless special orders have been issued, as to the proportions which should be entered (see rule 275).

(2) Suppose the entries are—

<i>Goradhan</i>	...	4 annas.	|	<i>Rahar</i>	...	4 annas.
<i>Urid</i>	...	4 "	|	<i>Til</i>	...	8 "

Goradhan and *rahar* *makhlut*.—The area of the field being 8 ac the calculation is made as follows:—

<i>Urid</i>	...	...	$(\frac{4}{16} \times 8) = 2$ acres.
<i>Til</i>	...	...	$(\frac{8}{16} \times 8) = 4$ "
<i>Rahar</i> and <i>goradhan</i>	...	...	$(\frac{4}{16} \times \frac{1}{2} \times 8) = 1$ acre (under each).

Goradhan and *urid* belong to the same season, as do also *til* and *rahar*. The entries will therefore be—

<i>Goradhan</i> and <i>urid</i>	...	3 acres.
<i>Rahar</i> and <i>til</i>	...	5 "

477. In the case of crops of the same season which have been sown either separately or mixed in one field, the area of the whole field will be entered opposite the crops in the area column, e.g., *goradhan* annas and *urid* 8 annas. Enter in the *bhadoi* column area of whole field.

478. When a field bears two crops in one year, the area of the field will be shown against each crop in its appropriate seasonal column and will also be entered in the *dofasali* column of the khasra. Examples:—

Makai is first grown on a field and then *sarsa*. The area of the field is 2 acres. The area of the field will be entered in the *bhadoi* column, in the *rabi* column, and in the *dofasali* column or columns.

479. When all the entries have been made, the muharrir will total the various columns by twenties. He will then add together the

column totals and deduct the total of the *dofasali* column also by twenties. The results for each 20 numbers should equal the corresponding totals of the general area column.

Statistical Statements.

480. The following statistical statements will be prepared:—

- (i) A statement showing the classification of cultivated and uncultivated areas (the *milan khasra*).
- (ii) A statement showing the areas under different kinds of crops (the *jinsuar* or crop statement).

These statements will first be prepared village by village. The totals for each village will then be added, and *thanswar* statements compiled. The statements will be sent to the Settlement Office, when completed.

These statements as prepared by the Cadastral Department will be ordinarily regarded as final. The Settlement Department will, however, make necessary corrections—

- (a) whenever any changes are made in village boundaries, subsequent to the transfer of the statements to the Settlement Department.
- (b) whenever any unnumbered plots are discovered at attestation or subsequent stages.

481. The crop statement form (*vide* Rule 518) provides for the

Form of crop statement.

entry of crop statistics, in accordance with the details required by the Government of India for agricultural statistics. Spare spaces should be left for crops peculiar to the locality, but the order and arrangements of the major heads should always be maintained. In areas where the *khasra* is in the form referred to in rule 280, each column of the crop statement and of the *chitta* crop statement is divided into two subheads "gross" and "average," and special instructions are required for the preparation of the crop statement.

482. The *milan khasra* will be prepared direct from the *khasra* in the prescribed form (*manuzsar milan khasra*) (*vide* Rule 517). In the case

of cultivated lands, the page totals of the area columns of the *khasra* are entered in the standard form under their appropriate heads. In the case of uncultivated lands, the areas of the different kinds should be shown in their appropriate columns. For instance, in the column of the *khasra* for culturable lands, which are not cultivated, the following kinds of lands are shown—*parti jadid*, *parti kadim*, *kharaur* plots, culturable jungles, non-fruit-bearing groves, and other kinds. The area under each kind must be entered in its proper column in the *milan khasra*. Care must be taken also to separate the *dofasali* area of the lowlands from that of the uplands, and to show the *dofasali* in the proper column. The page totals will be compared with the totals of the general area columns of the *khasra* as soon as each total is completed. The page totals are then added, and the *milan khasra* is complete.

The total in column 21 will be compared with the village area passed, and the *milan khasra* figures for the village will then be entered in the *thanawar* register, kept for the purpose.

483. The following procedure will be adopted in preparing the statement :—The *chitta* crop statement will first be prepared, plot by plot, in the prescribed form (rule 519). All the crop columns in the *chitta* form have been left blank except the columns for rice grown on lowlands. The *Muharrir*, as he prepares the statement, will write in the names of the crops which he finds in the *khasra*, and which are separately classed in the *jinswar* statement, a copy of which will be supplied to him. The *chitta* prepared page by page and the totals for each crop are shown at the end of every twenty *khasra* numbers. The areas of uncultivated lands will of course not be entered in this form.

From the total area under cultivation the *dofasali* will be deducted and the balance shown. The process is continued till all numbers have been entered. The areas of each twenty are then carried over in the prescribed form (*mauzawar jinswar*) column by column, and the totals for the village computed. The *Muharrir* will compare the cropped area with the cropped area total, as shown in the *milan khasra* page by page, as he prepares the statement. The two must agree. The *chitta* form will be preserved and filed with the record. When the statement is completed, the totals for the village will be entered in the *thanawar* register, kept for the purpose.

484. All entries will be entered in acres, and also in the local standard of measure, in all *khatians*. The areas in acres will be converted to the local standard by means of a table of equivalents, which should be prepared for the use of the *Muharrirs* who make the entries. A specimen table is given in Appendix C.

485. The *khatians* coming under each *khewat* number and fraction number are first collected together in the order in which they occur in the *khewat*. The collected *khatian* are then arranged in classes, e.g., *nij-jote*, *raiya* *khatian*, etc. The order of arrangement of the classes will be decided by the Settlement Officer at the commencement of the season.

At the end of the village record come the *Kaisar-i-Hind khatians*, if any.

486. The *khatians* appertaining to each class are arranged alphabetically, according to the names of the *khatian*-holders. In case of one or more *raiya*s or other *khatian*-holders are of the same name, the *khatians* will be arranged according to the alphabetical order of their fathers' names.

487. When the arrangement of each record is complete, the areas are entered in the *khatians*. The *Muharrir* takes each *khatian*, and enters its numbers in pencil according to the arrangement. He then turns up the page of the *khasra* in which each plot number is entered, and enters its area in the *khatian* under its appropriate head. The *Muharrir* will see that (a) the name of the *khatian*-holder agrees with the name

of the cultivator in the corresponding column of the khasra, and (b) the entries in the khasra and khatian agree with each other as regards classification of land, and that each entry is made in its appropriate column.

488. Discrepancies regarding classification of land must be reported through the Inspector to the Assistant Settlement Officer in charge of the section for orders. As the area of each plot is entered from the khasra in the khatian, the khatian number in the khasra should be corrected and the new serial shown in pencil. When all area entries have been made in all the khatians, the area columns in each separate khatian are totalled and noted in pencil. The number of plots in each khatian is also noted in pencil. In cases in which more than one khatian page has been prepared for one person, the total of each page will be carried forward, and the grand total for the entire khatian shown in pencil in the last page. The totals of the khatians are then added on a separate slip of paper, and the area of the village thus arrived at is entered in pencil in the last page of the last khatian in the record. If this agrees with the area of the village as shown in the khasra, the muharrir proceeds to prepare the *terij*. If it does not agree, he must reconcile the discrepancy.

489. To facilitate reference at attestation and to ensure the correctness of the area entries in the khatian, by comparison with the similar entries in the khasra, a preliminary *terij* will be prepared at this stage. The headings are usually as in the form given in Rule 520, but they may be varied to suit local conditions.

490. The *terij*, which is an abstract of the khatians, is compiled direct from them. In column 1 is entered the name of each estate with its *tauzi* number, etc., or of the tenure-holder with his number in the khewat, etc.; in column 2 the serial number of the khatian, and in column 3 the name, etc., of each tenant, in the same order as in the arranged khatian volume. The area columns are then filled in direct from the khatians. The khatian numbers will be left in pencil.

491. The Settlement Officer will decide what procedure should be adopted in totalling the entries according to the peculiarities of each settlement. The following arrangement is typical:—

				Acres.
<i>Nij jote khatians</i>	...	...	...	50·65
<i>Bakast malik</i>	...	...	...	30·06
Total <i>Nij jote</i> and <i>Bakast</i>	...	...	...	80·71

Then follow the raiyati khatians. The total area for raiyati is then added to the previous total, thus:—

				Acres.
Total <i>raiayati</i>	...	...	...	100·33
<i>Undisposed of khatians</i>	...	...	...	2·07
Total <i>Nij jote</i> , <i>bakast</i> , and <i>raiayati</i>	...	...	...	183·11

Then follow the entries of the *Gair mazrud khas* and *Am khatians*, with their totals—

			Acres.
<i>Gair mazrud khas</i>	...	...	20.37
<i>Gair mazrud am</i>	...	...	2.06
Total <i>gair mazrud khas</i> and <i>am</i>	...	...	22.43
Total of the <i>khewat</i>	...	...	205.54

The undisposed of khatians include fields regarding the possession of which orders have not been passed at khanapuri. No number is given to these khatians. After the total of the whole khewat come the under-raiyati khatians for that khewat. The total area of under-raiyati holdings should be noted.

This procedure is carried through for each khewat number, until the *terij* is completed.

492. Another abstract is then prepared showing the totals of the various *terij* columns for each khewat number, thus:—

Total khewat No. 1.

Total khewat No. 2.

Total whole village.

Then follows an abstract for the under-raiyati khatians:—

Total *goshwara khewat* No. 1.

Total *goshwara khewat* No. 2.

Total under-raiyati.

493. When the muharrir completes the *terij* he will—

- (a) compare the total area of the village arrived at in the *terij* with the passed area. In case of discrepancies, he must locate the mistake and make the necessary corrections. He will then enter the total area under each khewat in the area column of the khewat;
- (b) compare the total area for each class of land with the corresponding totals in the *milan-khasra*. In case of discrepancies, he will examine the *terij*, and locate the mistake and correct it.

COMPARISON OF RECORDS.

494. When the record of a village is completed by the *terij* muharrir, he will hand it over to the Head Inspector of the section, who, after making the necessary entries in Register No. IV, will make it over to an Inspector for comparison and check.

495. The Inspector will first scrutinise (a) the *yaddast*, and (b) the dispute list to see that all orders have been correctly carried out, and that the decisions in dispute cases have been correctly dealt with. He will sign the column for check in the dispute list in token of having done so.

486. The Inspector then checks the *chitta* form. His Muharrir reads out the entries in the following columns for each plot number in the khasra: crop, (if any) and area. This is done page by page. The Inspector sees that the entries have been correctly made in the *chitta*, and then compares the page totals with the corresponding page totals in the *insuar* statement. This process is continued until all the plot numbers in the village have been examined. The Inspector corrects the mistakes which he finds. If the mistakes are numerous, he will put up the record before the Assistant Settlement Officer of the section, who may order the amin to do over again any portion of the work.

487. The Inspector then checks the *milan-khasra*. His Muharrir reads out from the khasra the page totals for each twenty numbers. The Inspector sees that the entries have been correctly transferred to the *milan-khasra* statement, that the total area (cultivated and uncultivated) agrees with the village area, and that the areas of each class of land agree with the corresponding totals, as shown in the *terij*.

488. The Inspector will next compare the khasra and khatian. The Inspector reads out the numbers of the plots in the khatians. The Muharrir reads out the following entries for each number in the khasra:—Name of land, name of cultivator, khatian number, area, kind of crop (if any), and the entry for uncultivated lands (if any). The Inspector sees—

- (a) that the entries agree with the corresponding entries in the khatian;
- (b) that the totals of each khatian area column, as noted by the Muharrir in pencil, are correct (page by page);
- (c) that each khatian-holder's name has been entered in the agricultural stock list. If any name has been omitted, he will enter it, in order that the particulars may be supplied at attestation.

489. As each khatian is compared with the khasra, it will also be compared with the *terij*. The Muharrir reads out all the entries for the *khasra* in the *terij*. The Inspector sees that the name, number of khewat, number of khatian, name of khatian-holder, number of plots and the areas for each class of land have been correctly transferred from the khatian. He will make necessary corrections. The Inspector finally checks the totals of each area column in the *terij*, and compares the areas under each khewat with the corresponding entry for that khewat in the area column of the khewat. He will make necessary corrections (if any); but if he finds that the *tartib* muharrir has intentionally falsified any entry, he will report the fact to the Assistant Settlement Officer of the section.

BADARS.

Badars to be corrected by Muharrirs.

500. The *tartib* muharrir is authorized to correct the following errors or omissions:—

- (a) Mistakes made by him in preparing the *chitta*.
- (b) Mistakes made by him in preparing the *terij*.

- (c) Boundaries of plot numbers which have been omitted. The Muharrir will enter the boundaries after consulting map and finding out the boundaries of adjacent plots.
- (d) Entries of crops in wrong seasonal columns.
- (e) Entries of cultivated lands in the columns for uncultivated and *vice versa*.
- (f) Omissions to enter plots shown in the khasra in the khat. The Muharrir will refer the case to the Assistant Settlement Officer of the section, who will pass written orders. The order slip will be filed with the record.
- (g) Wrong reference numbers in the khatians (see rule 289).
- (h) Omissions to enter the results of decisions in khatian disputes in the records.
- (i) Other omissions or errors which the Assistant Settlement Officer of the section may, from time to time, order him to correct.

The Muharrir will initial all corrections and additions made by him.

501. The Inspector, when engaged in comparison of the records, will keep a *badar* list, in which he will note all mistakes found in the records of his examination. He is empowered to make additions and corrections in the records in the following cases:—

- (a) In case the name of any raiyat has been omitted from the Agricultural stock list at khanapuri, he will enter the name.
- (b) In case he finds that any plot numbers entered in the special khatians for disputes have not been entered in the Dispute list, he will enter the serial number and the khasra number in the Dispute list. The matter will be enquired into at attestation.
- (c) When any discrepancy is found between the plot numbers noted by the amin in column 3 of the Dispute list, and those entered by the Assistant Settlement Officer in the same column for decision of the dispute, he will note the fact in the remarks column. The matter will be enquired into at attestation.
- (d) In case he finds that two contrary decisions have been given with respect to a disputed plot entered in the Dispute list, he will note the fact in the remarks column. The matter will be enquired into at attestation.
- (e) In case he finds any discrepancy between a decision, as noted in the vernacular and in English in the Dispute list, he will note the fact in the remarks column. The matter will be enquired into at attestation.

502. The following classes of mistakes should be entered by the Inspector in his *badar* list, and referred to the Assistant Settlement Officer in charge of the section for orders:—

- (a) Khewat entries, with no khatians under them.
- (b) Cases in which two or more *maliks* are entered in a joint khewat, but in which separate khatians have been prepared for their *bakast* lands.
- (c) Discrepancies as to name of raiyat between the entries in the khasra and in the khatian.
- (d) Discrepancies in the khasra and khatian as to classification of land.
- (e) Cases of incorrect entries of the decisions in khanapuri disputes in the records.
- (f) Mistakes in the serial numbers of khewat entries.
- (g) Other mistakes not coming under any of the foregoing classes.

In all such cases the Assistant Settlement Officer will pass orders. He will write the order in the Inspector's *badar* list, initial and date it. In all cases in which a correct decision cannot be arrived at in office, he will make a note in the *badar* list in *red ink* in the form "to be enquired into at attestation." The matter will then be enquired into by the Attestation Officer.

All corrections and additions in the records will be initialled by the person who makes them.

FINAL JANCH OF THE RECORDS.

503. Five per cent. of the entries in each record will be re-examined by a Kanungo, Head Inspector or selected Inspector. He will follow the procedure laid down for Inspectors in the comparison of records, save that the *chitta* form need not be re-checked. He will initial each line of entries checked by him. In case he finds serious mistakes, which have not been detected or properly dealt with by the Muharrir or *maliks* Inspector, he will report the fact to the Assistant Settlement Officer of the section.

TURMIM OF BOUNDARY DISPUTE CASE RECORDS.

504. Whenever the decision of a boundary dispute case is modified or reversed in appeal, the clerk in charge of boundary dispute records will send the record of the case to the Assistant Settlement Officer in charge of the Drawing section, who will have the necessary corrections made in the maps concerned, and then send the record with the maps to the Assistant Settlement Officer in charge of the Area section, who, after making necessary corrections in the area statements of the villages concerned, will send the area statements and the boundary dispute

record on to the Assistant Settlement Officer in charge of the Khasra section. The latter officer will have the necessary corrections made in the records. The entries with respect to fields of village A, that have been transferred to village B, will be struck out in the records of village A, a note being made in the remarks column, stating that they have been transferred to village B in accordance with the decision of the appeal.

505. Necessary corrections will also be made in areas throughout the records in the *milan-khasra*, *jinswar*, and in the *terij*. When all corrections have been made, the officer in charge of the Khasra section will note the fact in the order-sheet of the boundary dispute record which will then be sent to the record-room. In case the appeal is decided after the records have been transferred to settlement, the same procedure will be followed, save that the officer in charge of the *dar* section will send the revised area statement direct to the Settlement Officer. The Assistant Settlement Officer in charge, head-quarters settlement, will have all corrections made in the records, and will note the fact as above.

506. The accounts of the section will be made up to the 23rd of each month; only those records which the final *janch* has been completed will be taken into account. The account register V (*vide* 515) is kept, a page being reserved for each Muharrir. The Kanungo or Head Inspector, who assists the Assistant Settlement Officer of the section, will prepare the accounts. They will be completed by the 3rd of each month, when they will be checked by one of the office accountants. They will be signed by the officer in charge of the section by the 3rd of the following month. The bill will then be cashed and the earnings distributed by the officer in charge of the section. At the end of the season the total expenditure on the contract work of the section will be calculated and compared with the cost of the operations for the total number of plots at the fixed rates. The result will be reported to the Settlement Officer.

507. The officer in charge of the section will be responsible for the progress and quality of the work. In addition to the duties prescribed in the foregoing rules—

- (1) He will examine Kanungos', Head Inspectors', and Inspectors' diaries frequently to see whether they are working up to the standard. He will initial all diaries so checked.
- (2) He will thoroughly examine the completed record of at least one village every week, and satisfy himself that the work has been done correctly, and that the comparison and the final *janch* have been properly carried out. In case he finds serious defects, he will send a report to the Settlement Officer.
- (3) Before sending the village record to the Settlement Officer, he will put his initials opposite the last plot number entered in the khasra.

Standards of work.

508. By inspectors on fixed pay—

	No. of plots daily.
Comparison of records (khasra with khatian, <i>terij</i> , <i>fora hawala</i> and khewat, and totalling area columns of khatians and <i>terij</i>)	400
Comparison of <i>chitta ausat</i> with <i>khasra</i>	700
By muharrirs on contract—	
Entering areas in khasra	1,000
<i>Milan-khasra</i>	2,000
<i>Chitta</i> -crop statement	600
Entering areas in khatian and totalling them	600
<i>Terij</i> -writing and entering areas in khewat	100

509. The following rates of pay, allowed in the Ranchi settlement, will be useful as a guide to other Settlement Officers :—

Rate of pay.

- (1) Entering areas in khasra at Rs. 1 per 1,000 plots.
- (2) Entering areas in khatian, *terij*, and khewat at Rs. 3-2 per 1,000 plots.
- (3) Preparing *milan-khasra* and *jinscar* at Rs. 3-2 per 1,000 plots.
- (4) Inspector's muharrirs at Rs. 10 per mensem each.

N.B.—Head Inspectors and Inspectors are usually paid as during the field season.

Registers and diaries.

510. The following registers and diaries will ordinarily be kept :—

- (1) Attendance register (*vide* rule 511.)
- (2) Daily outturn of work by Head Inspectors, Inspectors and Muharrirs ... („ „ 512).
- (3) Daily progress register ... („ „ 513).
- (4) Register showing distribution of work („ „ 514).
- (5) Register of accounts ... („ „ 515).
- (6) *Mokabila* Inspector's diary ... („ „ 516) (a).
- (7) *Janch* Inspector's diary ... („ „ 516) (b).

511.

REGISTER No. I.

Attendance.

Month of

190

[illegible][illegible][illegible]

512.

REGISTER No. II.

Daily Outturn of Work by Head Inspectors, Inspectors and Muharrirs.

Serial number.	Names of Head Inspectors, Inspectors and Muharrirs.	Names of villages.	Number of plots.	Areas entered in khasras.	Milan-khasras prepared.	Chitta crop statements prepared.
1	2	3	4	5	6	7

Crop statements prepared.	Khatiana arranged and areas entered.	Tory prepared and areas entered in khawat.	MOKABILA.		Final janoah of records.	REMARKS.
			Khasras with chitta, plot by plot.	Khasras with khatian, tory and khawat.		
8	9	10	11	12	13	14

516(b).

Janch Inspector's Diary.

Date and month.	Names of villages.	Halka number.	Total number of plots.	Total number of <i>khatas</i> .	Checking of distribution of areas in seasonal columns.	Milan <i>khasra</i> :	
						Number of pages.	Number of plots.
1	2	3	4	5	6	7	8

Crop statement.		Khasra with <i>khatians</i> , <i>terij</i> and <i>khewat</i> .		<i>Janch</i> of agricultural stock list.	Checking <i>khewat</i> —all numbers.	REMARKS
Number of pages.	Number of plots.	Number of <i>khatas</i> .	Number of plots.			
9	10	11	12	13	14	15

[illegible]

DETAILS OF IRRIGATED AREA AS REGARDS CROPS.					NUMBERS OF WELLS.		REMARKS.
Rice.	Wheat.	Other cereals and pulses.	Other food-crops.	Non-food-crops.	Masonry.	Earthen.	
27	28	29	30	31	32	33	34
A. D.	A. D.	A. D.	A. D.	A. D.			
Total .							

NOTE.—This form should also be used for statistics for a thana or other large area in which column 1 will be used for the entry of village names and thana numbers. The present heading will be suitably corrected.

RABI—contd.

FIBRES.			DYES.		DRUGS AND NARCOTICS.							
Cotton.	Munje.	Others.	Kusum.		Opium.	Coffee.	Tea.	Tobacco.	Cinchona.	Indian hemp.		
37	38	39	40		41	42	43	44	45	46		
A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.

RABI—concl.

Fodder crops.	Kharaul.		MISCELLANEOUS CROPS.						ORCHARDS AND GARDENS PRODUCE (INCL. PAU).			
			Garden produce other than mango groves.		Potatoes.		Non-food.		Total.		Mango garden.	
48	49		50		51		52		53		54	
A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.

Total of columns 12, 26 and 53.		Area cropped more than once.		Net area cropped.		Tar (palm tree).	Khajur (date tree).	REMARKS.
56		57		58		59	60	61
A.	D.	A.	D.	A.	D.	No.	No.	

NOTE.—This form should also be used for statistics of a thana or other large area in which case the "for kharas" page number will be used for the entry of village names and thana numbers. The general remarks will be suitably corrected.

520. TERIJ OR ABSTRACT OF KHATIAN.

[RULE 489, SURVEY MANUAL AND RULES 449-456, SETTLEMENT MANUAL.]

Name and thana number of village , *Pargana*
Thana , *District*

Name of estate, tauzi number, name of Patti, name of proprietor and tenure-holder with khewat number.	Serial number of khatian.	Name, parentage, caste, residence and status of tenant.	Number of plots.	AREA.			
				CASH PAYING.		HELD ON PROP. RENT.	
				Cultivated.	Unculti- vated.	Cultivated.	Unculti- vated.
1	2	3	4	5	6	7	8

AREA—concl'd.							Present rent, excluding cess.	Rent settled by Revenue Officer, excluding cess.
HELD WITHOUT PAYMENT OF RENT.		OTHER KINDS.		TOTAL AREA.				
Culti- vated.	Unculti- vated.	Culti- vated.	Unculti- vated.	Culti- vated.	Unculti- vated.	Total.		
9	10	11	12	13	14	15	16	17

CHAPTER XVIII.

RECORD-ROOM RULES.

Registers.

521. The following registers will ordinarily be kept :—

- | | | |
|--|-------------|--------------------------|
| (1) General Register, No. I | ... | (<i>Vide</i> rule 529.) |
| (2) General Register, No. II | ... | (" " 530.) |
| (3) Register of Miscellaneous Petitions, No. III | (" " 531.) | |
| (4) Chalan Register, No. IV. | ... | (" " 532.) |
| (5) Register for Boundary Dispute Cases, No. V | (" " 533.) | |
| (6) Distribution of Parchas (Register), No. VI | (" " 534.) | |

522. Register No. I will be filled up by the Record-keeper as he receives the records from the field, the last column only being left blank.

The Record-keeper will fill up the columns "*Partial khanapuri*" after consulting the *yaddast* for each village, in which the numbers of plots tested by various agencies are noted. When all entries in this register are completed, the Record-keeper will total the number of plots shown in columns 11 and 12. The totals should be compared with the totals for the whole season shown in Register No. V (see Rule 506). Discrepancies should be corrected. The register is kept *thana* by *thana*.

523. Register No. II will be filled up also on receipt of the record. Columns 5 and 6 will, however, be left blank till the records are completed in recess. Column 2 will be filled as in the following example :—

e.g., Received the record after *khanapuri*.

Record sent to Drawing section.

Received the record from Drawing section.

Record sent to the *Khasra* section.

Received back from the *Khasra* section.

A space consisting of about eight lines should be allowed to each village, to allow of these entries being made continuously. Receipts for all records issued should be invariably taken by the Record-keeper in the register itself, and he should also sign the register, when he returns back the record, in presence of the person who files it.

524. In Register No. III all miscellaneous petitions, notes for orders, etc., will be entered. They will be filed with the record on its return from the *Khasra* section, a note being made to that effect in column 7.

525. In Register No. IV will be entered the description of documents issued to other departments for copying and other miscellaneous purposes. Receipts are taken in the register itself.

526. Register No. V will be filled up as the Boundary Dispute records are received from the Drawing or *Khasra* section.

The Record-keeper will see—

- (a) that the Head Draughtsman's certificate, stating that the correct boundary has been shown on the 16-inch map, is filed with the record.
- (b) that the necessary certificate has been given by the Assistant Settlement Officer of the Khasra section, to the effect that the records have been corrected in accordance with the decision in appeals in those cases in which the orders of the lower court have been modified or reversed.

527. Register No. VI will be filled up on receipt of the parchas with the other records from the field.

528. The records of each village, before despatch to the Settlement Office, after completion of the preliminary record writing, will consist of—

Arrangement of village records.

- | | |
|-------------------|-------------|
| (a) Khewat, | (c) Khasra, |
| (b) Khatians, | (d) Terij, |
| (e) other papers. | |

The last, (e), will be divided into Part I, to consist of—

- (i) Notice C,
- (ii) Dispute list,
- (iii) Badar list,
- (iv) List of agricultural stock,
- (v) Notes for orders,
- (vi) Miscellaneous petitions,
- (vii) Undistributed parchas,
- (viii) Receipts for traverse stones.

Part II to consist of—

- (i) List of contents,
- (ii) Milan khasra statement,
- (iii) Crop statement,
- (iv) Forms used in the preparation of the two former statements.

Part I will be sent to the Attestation Camps; Part II will be kept at the Settlement Head-quarters.

General Register No. I, Records section.

	Name of circle officer.	Name of pargana.	Name of thana.	Thana number.	Description of mauza, e.g., cjmal, phatawali, pattidari, etc.
1	2	3	4	5	6

Name of mauza.	Name of survey admi.	SURVEY.					
		Date of commencement of survey.	Date of completion of survey.	Number of plots.		Acon.	
				"Aal" numbers khana puri.	Fractional numbers.	Acres.	Decimals.
7	8	9	10	11	12	13	14

Khanapuri.

Name of khana-puri Admi.	Date of commencement of khana-puri.	Date of completion of khana-puri.	Partial khana-puri				Date of despatch of record to settlement record room.	REMARKS.
			By inspectors.	By head inspectors or kanungoes.	By circle assistant settlement officers.	By other officers.		
15	17	18	19	20	21	22	23	24

Khanapuri-contd.

[illegible]

Khanapuri—concl'd.

[illegible]

531. *Register No. III of Miscellaneous Petitions regarding entries in records—Records Section.*

Serial number.	Name of village.	Name of petitioner.	Date of filing.	Contents of papers, etc., filed, with date, and order of the Assistant Settlement Officer.	Signature of officer receiving the petition.	Disposal of petition.	REMARKS
1	2	3	4	5	6	7	8

532. *Register No. IV—Challan—Records' Section.*

Serial number.	Name of <i>manzo</i> .	Description of paper.	To whom issued.	Date of issue.	Signature of receiving officer.	Date of return.	Signature of Record-keeper.	REMARKS
1	2	3	4	5	6	7	8	9

183. Register No. V of Boundary Disputes—Records' Section.

PART I.

Circle Officer's number.	1ST VILLAGE.		2ND VILLAGE.		Title page.	Table of contents.
	Name.	Thana number.	Name.	Thana number.		
1	3	4	5	6	7	8

PART I—contd.

In- spectors' report.	Khasra Tanaja.	Trace.	Hending of deci- sion.	Decision.	Notices to parties.	Certificate of Head Draughts- man.	Miscella- neous papers.
10	11	12	13	14	15	16	17

PART II.

Table of contents.	Reference sheet.	Trace.	Certifi- cate of Head Draughts- man.	Khasra Tanaja.	Miscella- neous papers.	Date of filing records in Record Room.	REMARKS.
19	20	21	22	23	24	25	27

CHAPTER XIX:

STORE-ROOM RULES.

535. All stores including instruments, etc., will be placed in charge of an Assistant Settlement Officer, who will have one or more store-keeper and peons under him. During the field season the store section will be in charge of the Assistant Settlement Officer, headquarters cadastral.
536. Each store-keeper will give security for the amount of Rs. 100 and will execute a bond in a prescribed form.
537. The store-keeper will see that all stores, tents, instruments, etc., are kept in good order and will take necessary precautions to prevent all avoidable loss or injury, such as damage done by white ants, etc. He will be held responsible for the value of any articles that may be destroyed or damaged, owing to his disregard of ordinary precautions.
538. The store-keeper will keep stock books showing separately (1) Tents, (2) Instruments, (3) Furniture, (4) Stationery, (5) Forms, (6) Medicine, and (7) Books.
539. The stock and issue registers for stationery, books, instruments, furniture, medicines, tents, etc. will be kept in Board's Form No. A, necessary changes being made in the headings, and the columns being lengthened so as to admit of showing all items in one page. Forms will be kept in Board's Form No. 19. The necessary index will be prepared, and all forms entered in it as soon as received.
- All issues will be entered in *red ink* and receipts in *black ink*.
540. All requisitions for articles from the store-room must be countersigned either by the circles officer or officers in charge of sections (in recess). If requisitions are not countersigned, the store-keeper will not supply the articles. In case the store-keeper thinks that any requisition is extravagant, he will refer the matter to the Assistant Settlement Officer in charge of the store.
541. The stock books will be brought up to date each month and a balance struck, the balance in hand being shown in black ink.
542. The officer in charge of the store-room will sign all the stock books, after the balance has been struck, on the second of each month.
543. No erasure or cuttings will be permitted. When the store-keeper makes any wrong entry, he may correct it; but the correction should be put up before the Assistant Settlement Officer for his initials.

544. The store-keeper must take a receipt for all articles issued. If he fails to do so, he will be held responsible for the articles, in case they are lost.

Receipts to be taken.

The receipts should be taken in the stock book registers, if possible.

545. At the end of the recess, the store-keeper will see that all articles have been returned. In case articles are not returned, the store-keeper will send a list of such articles with their values noted against them to the officer in charge of accounts, who will realize the value from the person responsible.

Realization of value of articles not returned.

546. At the end of the field season, and again at the close of the recess, all articles should be counted and the results compared with the stock books. The officer in charge of the section should certify on the stock books that the count has been made.

Stock to be taken.

547. All articles as soon as they are received, purchased or prepared, should be entered in the stock books. All articles purchased from contingencies for permanent use, should be entered in the stock books. The officer in charge of accounts should inform the officer in charge of the store-room whenever such articles are received.

Entries in stock books.

Numbering of tents.

548. The tents in stock will be numbered thus:—

s s 1.

s s 2, etc.

549. At the end of the field season, a list will be made of tents, instruments and all articles which have become unserviceable. They will be inspected carefully by the officer in charge of the section, who will send a report to the Settlement Officer, noting whether the articles should be destroyed or otherwise disposed of and written off the books. The Settlement Officer will pass orders.

Destruction or sale of unserviceable articles.

Rules for the guidance of Tour Clerks in charge of stores, instruments, etc.

550. At the commencement of the field season, the store-keeper will hand over tents, instruments, books, etc., for each circle to the tour clerk of the Assistant Settlement Officer, and will take receipts from him for all articles issued.

551. The tour clerk will keep an account and will be held responsible for them, until they are returned to the store-room. He will strike a balance in all stock books on the 24th of each month, and put up before the Assistant Settlement Officer of his circle for signature on that date.

552. The tour clerk will issue instruments, etc., to Inspectors and amins, and will take receipts for all articles issued in the prescribed form. The original distribution of instruments, etc., to Inspectors and

amins will be made by the tour clerk in presence of the Assistant Settlement Officer of his circle. Subsequent distributions will be made by the tour clerk alone.

553. Instruments, etc., will not be transferred from one circle to another. When an amin is transferred from circle A to circle B, he will deposit all instruments, etc., received by him at the head-quarters of circle A. He will receive necessary instruments, etc., again at the head-quarters of circle B.

554. At the end of the field season, Inspectors and amins will return all instruments, etc., to the tour clerks of their circle. The tour clerk will give them receipts, and will at the same time make a note on the receipts if any article has not been received back.

255. The tour clerk will then prepare a list of all tents, books, instruments, etc., and put it up before the Assistant Settlement Officer of his circle for signature. The list, together with the articles, will then be sent to the head-quarters of the cadastral camp, where a receipt will be given for all articles deposited.

The tour clerk will also prepare a list of lost instruments, etc., which will be signed also by the Assistant Settlement Officer of the circle, and then made over to the store-keeper.

556. The Assistant Settlement Officer of the circle is bound to see that the tour clerk observes these rules, and that explanations are given at the end of the season on the lists prepared by the tour clerk with regard to all missing articles, and that the responsibility for the loss is fixed. If he fails to do so, he will himself be held responsible.

557. The covenanted Assistant Settlement Officer in charge should inspect the stock books whenever he visits the head-quarters of a circle.

558. A specimen of the security bond to be taken from amins, Inspectors, and others, to whose custody maps, instruments, and other property of Government are temporarily committed, is given in Rule 560.

Security bond.

559.

*Amin's receipt for instruments, etc.*Name of Inspector
Name of AminReceipt No.
No.Zilla
Halka No.

Plane- tables, tripods and screws.	Chains	Pins.	Dividers.	Offsets.	Optical squares.	Scales.	Flat rules.	Sight vanos.	Knives.	Pens.	Pencils.	Ink- pots.	Rubbers.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Signature														
Date														

[To be kept by the Store-keeper.]

*Receipt for instruments, etc., received back from an Amin.*Name of Inspector
Name of AminReceipt No.
No.Zilla
Halka No.

Plane- tables, tripods and screws.	Chains.	Pins.	Dividers.	Offsets.	Optical squares.	Scales.	Flat rules.	Sight vanes.	Knives.	Pens.	Pencils.	Ink- pots.	Rubbers.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Signature														
Date														

[To be given to the Amin on receipt of the instruments.]

*List of instruments, etc., given to Amin.*Name of Inspector
Name of AminReceipt No.
No.Zilla
Halka No.

Plane- tables, tripods and screws.		Chains.	Pins.	Dividers.	Offsets.	Optical squares.	Scales.	Flat rules.	Sight vanes.	Knives.	Pens.	Pencils.	Ink- pots.	Rubbers.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Signature												
		Date												

[To be given to the Amin with the instruments.]

560.

Form of Security Bond.

I _____, son of _____, within the jurisdiction of _____, in the district of _____, at present residing in the district of _____, do hereby agree and covenant with the Settlement Officer of _____ and his successors, that whereas I have been appointed as an ^{Amin} Inspector in the Government Settlement Department under his charge, and whereas I am placed in charge of maps, instruments and other property of Government, and am bound to perform my duties properly and faithfully, so long as my services may be retained by Government, and whereas it is necessary for me to execute a security bond in the sum of Rs. $\frac{20}{50}$, in favour of the said Settlement Officer to indemnify him against any loss of Government property and against any harm and prejudice to the work of Settlement that may be caused by my acts, I do hereby deposit with and place under the control of the said Settlement Officer the sum of Rs. $\frac{20}{50}$, in cash, for which a receipt has been granted to me [or I hereby agree to deposit the sum of Rs. $\frac{20}{50}$, the said amount to be recovered in monthly instalments of Rs. 5, from my pay or earnings]. and I hereby agree that I shall take due and proper care of all instruments, maps and other property belonging to Government in the Settlement Department that may by virtue of my office be placed in my charge or may in the ordinary course of my duties as such ^{Amin} Inspector come under my dominion and control and that I shall perform my duties faithfully, assiduously, and work in the field as well as during the recess season, as I may be directed by my superior officers, and shall not leave my post unless and until I am granted leave of absence or I am discharged by the said Settlement Officer; that in the event of any loss of or damage to any property as aforesaid in my charge, the Settlement Officer for the time being shall have the power to deduct from the said deposit of Rs. $\frac{20}{50}$, and appropriate to the use of Government to make good the loss caused by my act or negligence, such part as he may think fit, or the whole of the said deposit of Rs. $\frac{20}{50}$; and I further agree and covenant with the said Settlement Officer that in the event of my neglecting my work or deserting my post without the leave and permission in writing of the Settlement Officer previously obtained, I shall forfeit to the said Settlement Officer, or his successors the whole or such portion as he may think fit of the said deposit of Rs. $\frac{20}{50}$, and the Settlement Officer shall be entitled to appropriate the same to the use of Government.

In witness whereof, I the said _____ do hereby, out of my own free will, execute this security bond in favour of the said Settlement Officer on this the _____ day and in the year of Jesus Christ one thousand nine hundred _____

Signed in the presence of

1. _____
2. _____
3. _____

APPENDIX A.

Extracts from the Government Rules under the Bengal Tenancy Act, VIII of 1885, (as modified by subsequent legislation) together with the Board's Instructions thereon.

[The rules were published in Notification No. 2705T.R., dated the 31st October 1907 (pages 1819-1847, Part I, *Calcutta Gazette* of 6th November 1907), as amended by Notification No. 2079L.R., dated the 7th April 1908 (page 804, Part I, *Calcutta Gazette* of the 8th idem.)]

CHAPTER I.—GENERAL.

1. In carrying out the following rules, Revenue-officers shall have regard to the instructions of the Board of Revenue for the guidance of Revenue-officers, so far as such instructions are consistent with the rules herein prescribed under Act VIII of 1885.

2. Except where otherwise provided for by law or by these rules, all proceedings and orders of Revenue-officers, passed in the discharge of any duty imposed upon them by or under this Act, shall be subject to the supervision and control of the Board of Revenue; and the proceedings and orders of each Revenue-officer under this Act shall be subject to the supervision and control of the Revenue-officers to whom he may be declared by the Board of Revenue to be, for the purposes of the Act, subordinate :

The Collector and the Commissioner in whose jurisdiction operations under these rules are in progress shall be entitled to inform themselves of the nature and progress of such operations.

Board's Instructions.

Under this rule Assistant Superintendents of the Survey Department appointed to be Revenue-officers are declared to be subordinate to Deputy Superintendents of the Survey Department appointed to be Revenue-officers. Assistant Settlement Officers are declared to be subordinate to Settlement Officers and Settlement Officers are declared to be subordinate to the Director of Land Records or to the Commissioner, or Collector, as the Board shall in each case direct,

3. Where no other mode of service of notice is prescribed by the Bengal Tenancy Act or by these rules, service shall be effected in the manner prescribed for the service of summons on a defendant under the Code of Civil Procedure, if the notice is addressed to one or more persons occupying or owning the same holding or tenure; and if it is addressed to a number of persons occupying or owning different holdings in the same village, the notice shall be served in the manner prescribed for the service of summons on a defendant under the Code of Civil Procedure, or by proclamation and beat of drum, and by posting in the presence of not less than two persons on some conspicuous place in the village, and also by fixing it up in the village office, if any, where the rent is usually paid.

CHAPTER VI.

THE PROCEDURE TO BE FOLLOWED BY REVENUE-OFFICERS IN

REGARD TO THE RECORD-OF-RIGHTS AND SETTLEMENT.

40. (a) Every Revenue-officer appointed by the Local Government under the designation of "Settlement Officer" or "Assistant Settlement Officer" for the purpose of making surveys, records-of-rights, settlement of rents, determination of proprietor's private lands and such like proceedings, or any one or more of them, under the Bengal Tenancy Act, 1885, is hereby vested with—

- (i) all the powers exercisable by a Civil Court in the trial of suits;
- (ii) powers to enter upon any land and to survey, demarcate and make a map of the same;
- (iii) all the powers of an Assistant Superintendent of Survey and a Deputy Collector under the Bengal Survey Act, 1875; and
- (iv) power to cut and thresh the crops on any land and weigh the produce, with a view to estimating the capabilities of the soil.

(b) A Revenue-officer who, under the designation of "Settlement Officer," has been appointed by the Local Government for the purpose of making a survey and record-of-rights and settlement of rents under Chapter X of the Bengal Tenancy Act, 1885, shall have power, by general or special order, to make over for disposal to any officer subordinate to him (who has been duly empowered, under the designation of Assistant Settlement Officer, to act as a Revenue-officer under the provisions of the same Chapter of the same Act)—

- (i) objections preferred under section 103A,
- (ii) the settlement of fair rents (including the preparation of a table of rates);
- (iii) the preparation of a Settlement Rent-Roll, under Chapter X, Part II, of the Act, in any area;
- (iv) applications for the settlement of fair rents under section 105;
- (v) suits instituted for the trial of disputes under section 106; and
- (vi) applications for the commutation of rents under section 40.

(c) A Revenue-officer so appointed under the designation of Settlement Officer shall, on the application of any person interested, and after giving notice to other persons interested and hearing any objections preferred, or of his own motion without giving such notice, have power to withdraw, from the file of any Assistant Settlement Officer subordinate to him, any of the matters specified in

rule 40 (b) above, and to dispose of them himself, or to transfer them for disposal to any other Assistant Settlement Officer subordinate to him who has been duly empowered to act as a Revenue-officer.

(d) On the application of either party to a suit under section 106, after giving notice to the other party and hearing any objections preferred, or of his own motion without giving such notice, a Revenue-officer so appointed under the designation of Settlement Officer may transfer to such competent Civil Court as the District Judge may designate the trial of a suit or of any class of suits instituted for the decision of a dispute or disputes which involves or involve important and complicated questions of right and title or claim to be put in possession.

(e) In the case of an uninhabited village, any general notice to be served or publication to be made under the rules in this Chapter may be served or made in any inhabited village contiguous to that village, or, if there be no inhabited village contiguous to that village, in the inhabited village nearest to that village or in the village in which the tenants and occupants of the lands of the uninhabited village are believed by the Revenue-officer to reside.

41. Deputy Superintendents of Survey and Assistant Superintendents of Survey employed in operations under these rules are hereby

Powers vested in Deputy Superintendents of Survey and Assistant Superintendents of Survey.

declared to be Revenue-officers for the purpose of performing any duty imposed upon them by these rules, or by instructions, consistent with these rules, issued by the Board of Revenue. They are hereby vested with the powers specified in section 189 (1) (b), provided that an Assistant Superintendent shall not exercise the powers vested in a Superintendent, under the Bengal Survey Act, 1875 (Ben. Act V of 1875).

Procedure for Cadastral Survey, Record-of-rights and Settlement of Rents.

Procedure for Survey, Record-of-rights and Settlement of rents.

42. The processes shall be—

A.—Demarcation of boundaries.

B.—Measurement.

C.—Khanapuri, i.e., preliminary preparation of the record.

D.—Attestation of the record.

E.—Publication of the draft record.

F.—Disposal of objections under section 103A.

G.—Settlement of fair rents in cases in which a settlement of revenue is being, or is about to be, made.

H.—Final publication of the record-of-rights.

I.—Distribution of copies of the record-of-rights to parties interested.

J.—The settlement of fair rents on the application of the parties under section 105, and the trial of suits for the decision of disputes under section 106, in cases in which a settlement of revenue is not being, or is not about to be, made.

K.—Correction of *bonâ-fide* omissions or mistakes in the record-of-rights.

A.—Demarcation of Boundaries.

43. (a) In the demarcation of village boundaries, the area contained within the exterior boundaries of the village maps of the revenue survey shall be preserved, as far as possible, as the unit of survey and record.

(b) Where there is no dispute, the boundary of the village, according to possession, shall be followed for the purposes of map and record.

(c) Where there is a dispute as to a village boundary, the Revenue-officer shall decide the dispute under the Bengal Survey Act, 1875 (Ben. Act V of 1875).

(d) Where the Settlement Officer is of opinion that the village maps prepared at the Revenue Survey are not suitable as the unit of survey and record, he shall issue notice of the inquiry to all parties concerned in the manner prescribed, and after such local inquiry in the presence of the parties as he may consider necessary, shall determine the area to be included in the village. He shall then submit his proceedings to the Board, through such superior authorities as the Board may prescribe; and such area as the Board may, after such further inquiry as may be deemed necessary, declare to be included in a village shall be adopted as the unit of survey and record-of-rights:

Board's Instructions.

The Settlement Officer's report should be submitted through the Collector of the district to the Director of Land Records, Bengal, who will forward it through the Commissioner of the Division to the Board. The Collector should report in each case whether the proposed change would be suitable for administrative purposes.

Provided that in all cases where the Revenue Survey village is not adopted as the unit of survey, the Settlement Officer shall draw up a statement, in such form as the Board may prescribe, showing the areas adopted as the unit of survey as compared with the areas contained in the village maps of the Revenue Survey; and such statement shall be filed in the Collector's Office.

Board's Instructions.

The following form is prescribed by the Board :—
Name of thana

ACCORDING TO REVENUE SURVEY OF 18 .			VILLAGES ADOPTED UNDER RULE 43 (d).				
Name of mauza.	Revenue Survey number.	Area in acres according to Revenue Survey.	Name of village.	Thana Number.	Names in tolas comprised in village.	Area in acres.	REMARK
1	2	3	4	5	6	7	8

(e) Where no Revenue Survey maps have been prepared, the Revenue-officer appointed under the designation of Settlement Officer shall issue notice to all parties concerned, in the manner prescribed and, after such local inquiry in the presence of the parties as he may consider necessary, shall determine the area to be included in the village. He shall then submit his proceedings to the Collector; and such area as the Collector, after such further inquiry as he deems necessary, and with the sanction of the Board of Revenue, by general or special order, declares to constitute a village shall be adopted as the unit of survey and record-of-rights.

(f) In cases where the procedure prescribed in sub-clauses (d) and (e) have been adopted, the Board of Revenue shall submit a report to Government for issue of the notification prescribed by section 3 (10) of the Bengal Tenancy Act.

(g) The notice under rule 43 (d) and (e) of the inquiry to be held shall be given by proclamation and beat of drum and by posting it, in the presence of not less than two persons, in some convenient place or places in the lands to which it refers.

44. Boundary pillars of a permanent nature shall be erected at every point where the boundaries of three or more villages meet, and may be erected wherever the Revenue-officer considers it necessary to define by pillars the boundaries of estates or tenures, or of lands which have been the subject of dispute.

B.—Measurement.

45. A field map of every village shall be prepared. It shall show the boundaries of every field separately held, or of such plot of land as the instructions of the Board of Revenue for giving effect to these rules may lay down.

Board's Instructions.

The instructions of the Board are contained in rules 117 and 119 of this Manual.

C.—Khanapuri, i.e., Preliminary Preparation of the Record.

46. The following are the principal documents to be prepared in the course of a survey and the preparation of a record-of-rights under Chapter X of the Bengal Tenancy Act, 1885:—

Documents to be prepared in course of survey and preparation of record-of-rights.

Village map.
Khasra.
Parcha.

Khewat.
Khatian.
Terij.

These and any other papers prescribed by the Board of Revenue shall be prepared in such manner as the Board may prescribe.

Board's Instructions.

General instructions have been given in Chapter XI of this Manual, but special instructions in particular settlements may be issued with the approval of the Board.

47. The record-of-rights, which shall be published under section 103A of the Bengal Tenancy Act, 1885, shall be contained in the khewat and the khatian and such other papers as may be specified by general or special order of the Board of Revenue in the case of any local area.

48. (a) The proprietary khewat shall show the character and extent of proprietary interests. It shall be first drawn up with reference to the registers maintained by the Collector under the provisions of the Land Registration Act, 1876 (Ben. Act VII of 1876). A. the record-writing proceeds, the proprietary khewat shall be altered in accordance with the facts of possession. The Settlement Officer shall, from time to time, under such instructions as the Board of Revenue may prescribe in this behalf, give information to the Collector of all alterations made in the khewat, and the Collector shall thereupon take action to make such corrections as may be necessary in his registers prepared under the Land Registration Act. If the Collector, after inquiry under the Land Registration Act, finds that any entry in the khewat is incorrect, a note shall be made in the khewat of his finding.

Board's Instructions.

The instructions have been incorporated in rules 249-253 of this Manual.

(b) A khewat shall ordinarily be prepared to show the character and extent of the interest of tenure-holders, such of their interests as are of a raiyati nature being also recorded in the khatian.

49. (a) The khatian shall show in detail for all the lands of the village, estate by estate, landlord by landlord, tenant by tenant, and occupant by occupant, the lands included in each estate owned by each landlord and occupied by each tenant or occupant, with particulars of rent and area and of the incidents of each tenancy.

(b) Lands cultivated or otherwise held direct by the proprietor shall be shown in detail in the khatian, and shall be entered either as proprietor's private land within the meaning of section 120 of the Bengal Tenancy Act, or as land held by the proprietor, but not private land, within the meaning of that section.

APPENDIX B.

[Approved by the Government of India, Department of Revenue and Agriculture (Land Surveys), in No. 1061—52—5, dated 8th July 1907].

SURVEY OF INDIA.

Rules and Regulations of the Mathematical Instrument Office, 15, Wood Street, Calcutta.

1. The Mathematical Instrument Office is a Depôt, for the supply, repair, and adjustment of mathematical and other instruments, etc., employed in various Government Departments and Offices. The instruments issued may be new or second-hand at the discretion of the Officer in charge; as a rule, new instruments are not supplied if serviceable second-hand ones of the class required are available. Instruments, when no longer required, are also taken into store from Government Departments and authorised offices at a valuation which is given for each instrument returned.

2. All transactions between the Mathematical Instrument Office and other Government Departments and offices are adjusted by "book transfer."

3. Instruments, etc., when they can be conveniently spared, may be issued on "cash payment" to District Boards and Municipalities, Native States, and individual officers of Government for their official use. With the approval of the Officer in charge, instruments may also be sent to the Mathematical Instrument Office "for repairs" on similar terms. Instruments, etc., cannot be issued to, nor repaired for, private firms or individuals.

4. Instruments, etc., will be issued at their book value to, and repairs will be executed at cost price for, Public Service Departments of Government, but 25 per cent. will be added to the book value of issues to, and 10 per cent. will be added to the cost price of repairs executed for, quasi-Commercial Departments of Government or on "cash payment."

5. The Mathematical Instrument Office cannot undertake the supply or repair of any description of electrical or telegraphic instrument, nor does it issue type, stationery, or drawing materials.

6. All correspondence and all instruments sent to the Mathematical Instrument Office should be addressed to the Officer in charge, Mathematical Instrument Office, 15, Wood Street, Calcutta. Telegrams should be addressed to "Surveys, Inst.," Calcutta.

7. All indents for instruments, etc., should be submitted on the annexed form A. and every indent for instruments, etc., required on "book transfer" must be duly approved and countersigned, in accordance with the instructions printed on the back of the form, before the indent can be complied with. An indent sent by telegram should be subsequently confirmed by the submission by post of the usual countersigned indent, with a note on the form intimating that the instruments have already been indented for by telegram.

8. The nomenclature and price of the different instruments, etc., generally kept in stock are given in a price-list. The prices are the

approximate prices of new instruments, etc. An indenting officer should enter the approximate price of each description of instrument required in the column of the indent allotted for that purpose, so as to enable the officer who countersigns and finally passes the indent to know the probable expense it involves, and also to guide the Mathematical Instrument Office in selecting instruments to meet the demand. If the prices entered in an indent are not to be exceeded, this fact should be clearly stated.

9. In order to prevent misunderstandings, indenting officers should invariably state, *on their indents*, the size and class of the instrument required, and when ordering a scale, particular care should be taken to note its length, how divided, and the purpose for which it is required.

10. All instruments sent to the Mathematical Instrument Office for repair or adjustment should be despatched, *freight prepaid*, and at the same time, under separate cover, a requisition "for repairs" should be sent on the annexed form B. No instrument will be repaired unless the Officer in charge considers it worth the cost of the work.

11. Indents should be submitted *as early as possible* to enable arrangements to be made to meet the demand in case the articles are not in stock, and all instruments requiring repairs should be forwarded to the Mathematical Instrument Office *as soon as* they are available. It is particularly requested that when a large supply of instruments is likely to be wanted for railway surveys or other large projects, the Mathematical Instrument Office should receive as long prior notice as possible of the probable number and description of articles required.

12. The mode of transit and address to which instruments, etc., are to be consigned by the Mathematical Instrument Office, as well as the address to which correspondence regarding the case is to be sent, must invariably be specified in full on the indent or requisition form; when instruments, etc., are to be despatched by post the name of the Post Office, as well as of the District in which it is situated, should be given, and when by railway the nearest Railway Station should be distinctly stated.

13. When issuing instruments, etc., which are required on "book transfer" or despatching them after repair, the Mathematical Instrument Office sends an "invoice" in *triplicate* showing the amount due; one copy should be signed and returned without delay as it is required for submission with the monthly accounts of the Mathematical Instrument Office, for adjustment by the Comptroller, India Treasuries; the other copies should be dealt with as laid down in Article 96, Volume I, Civil Account Code (7th Edition). In the case of instruments, etc., issued or repaired on "cash payment" *pre-payment* is necessary, and, whenever it is possible, they, or the railway receipt for them, will be sent by V.-P.P.

14. All Government instruments, when no longer required, should be at once despatched to the Mathematical Instrument Office, *freight prepaid* and at the same time, under separate cover, a list of the instruments deposited as "no longer required" should be sent on the annexed form C. It is particularly requested that surplus instruments

may not be retained in any Government Office as they only deteriorate and become obsolete, while, if despatched as soon as they are no longer required to the Mathematical Instrument Office, they can be overhauled, put into serviceable condition, and made available for issue to other officers requiring them. The Mathematical Instrument Office is, as a rule, unable to receive instruments for deposit as "no longer required" from Departments or officers who are not entitled to deal by means of "book transfer," and it is essential before sending such instruments, to enquire if it will be convenient to receive them.

15. When Government instruments are received by the Mathematical Instrument Office for deposit as "no longer required" they are valued according to their condition and a "valuation statement" is then sent to the officer depositing them; the amount of this valuation is credited to his department or office in the monthly accounts of the Mathematical Instrument Office, for adjustment by "book transfer" through the Comptroller, India Treasuries.

16. When an officer considers that Government instruments are unserviceable and that their transit charges may nearly equal or exceed their actual value as material, a survey should be held on them by a committee of Government Officers, whose report in duplicate should be forwarded to the Officer in charge, Mathematical Instrument Office, who will return one copy with instructions entered on it as to which of the instruments should be forwarded to the Mathematical Instrument Office. Unserviceable chains, staves, tapes, etc., are seldom worth their transit charges.

17. As indents, requisitions "for repairs," and lists of instruments "no longer required" are dealt with in separate sections in the Mathematical Instrument Office, they should be kept *quite distinct* and should not be mixed up on the same form. In all cases reference should be made to any previous correspondence on the subject dealt with, and, when instruments are forwarded to the Mathematical Instrument Office, it should be clearly stated whether they are "for repairs" or "no longer required." The forms are *not* required in *duplicate* and should not be accompanied by forwarding letters unless more explanation is necessary than can be given on the face of the forms.

18. The carriage of instruments, etc., is *not* paid by the Mathematical Instrument Office; consequently all consignments sent to it must be *prepaid* by the officers sending them, and the freight, etc., on those despatched by the Mathematical Instrument Office must be paid by the officers receiving them. Incidental charges for packing cases, etc., are included in the "invoices" or "bills."

19. Owing to the very rough treatment which boxes, etc., often receive in transit, particular attention is drawn to the importance of packing all instruments with great care; delicate instruments should, if possible, be despatched *insured*. Each package of a consignment of instruments despatched to the Mathematical Instrument Office should bear the address of the consignor with a distinctive mark and also a serial number, which should be given to each package of such consignment; this information should be recorded on railway

receipts or bills of lading. Every package should contain a packing note giving a full list of contents and the address of the consignor.

20. The accounts kept by the Mathematical Instrument Office do not permit of "loans" or "exchanges", and instruments cannot be sent "on approval." When instruments are required on "Government Service" for a limited time, however short, two distinct "book transfer" transactions are necessary; the instruments must be properly indented for and, when finished with, they must be returned as "no longer required."

21. In all dealings with the Mathematical Instrument Office, the official forms in use in that Office should be used, but military officers should submit indents and requisitions "for repairs" on I. A. Forms Z2117 and Z2118, respectively. The Mathematical Instrument Office is conducted under Civil rules, and all references to Army Regulations, Equipment Tables, etc., should therefore invariably be supplemented by a clear statement of what is required.

22. These rules and regulations, the price-list, and forms A, B, and C can be obtained *gratis* on application, from the Officer in charge, Mathematical Instrument Office.

DUPLICATE NOT REQUIRED

Form A.

SURVEY OF INDIA,

MATHEMATICAL INSTRUMENT OFFICE.

Indent No. _____ *on the Mathematical Instrument Office,*
15, Wood Street, Calcutta, for Instruments, etc., required for the
use of _____ *dated* _____ *190* _____

Description of Instruments, etc., with the reference number as per Price List.	Quantity or number in use or store.	Quantity or number now indented for.	Purpose for which required.	* Whether required on "book transfer" or on "cash payment."	† Probable price as per Price List.		Name of Account Office in which price is to be adjusted.	How and where to be despatched.
					Rs.	As.		
1	2	3	4	5	6	7	8	9

I hereby certify that the articles specified on this Indent are indispensably necessary for the purposes set forth to the best of my knowledge and belief, after the most careful examination.

Recommended.

* The price of instruments, etc., issued on "Government service" must be adjusted by "book transfer", and by "cash payment" on all other occasions.

† All instruments, etc., issued to quasi-commercial Departments of Government or on "cash payment," will be charged at their book value plus 25 per cent.

See instructions on pages 232-33.

Countersignature of approving authority. *Signature of Indenting Officer.*

INSTRUCTIONS FOR INDENTING OFFICERS.

1. All indents, correspondence, etc., should be addressed to the Officer in charge, Mathematical Instrument Office, 15, Wood Street, Calcutta. Telegrams should be addressed to "Surveys, Inst.," Calcutta. An indent sent by telegram should be subsequently confirmed by the submission by post of the usual countersigned indent, with a note on the form intimating that the instruments have already been indented for by telegram.

2. The nomenclature and cost of the different instruments, etc., generally kept in stock are given in a price list; the prices are the approximate prices of new instruments, but, as a rule, new instruments are not supplied if serviceable second-hand ones of the class required are available.

3. The Mathematical Instrument Office cannot supply any description of electrical or telegraphic instrument, nor does it issue type, stationery, or drawing materials.

4. It is particularly requested that the sizes and sorts of instruments, lengths of scales, how divided, and purpose for which required, and generally any information, which will guide the Mathematical Instrument Office in knowing, without further reference, the exact wants of the indenting officer, be entered, as far as possible, in columns (1) and (4) instead of in a covering letter. The nomenclature and reference number given in the price list should, if possible, be used.

5. Especial attention is requested to the filling up correctly of columns (5) and (7).

6. An indenting officer should enter in column (6) the approximate price of each description of instrument required, so as to enable the officer who countersigns and finally passes the indent to know the probable expense it involves, and also to guide the Mathematical Instrument Office in selecting instruments to meet the demand. If the prices entered in an indent are not to be exceeded the fact should be clearly stated.

7. The mode of transit and address to which instruments are to be consigned by the Mathematical Instrument Office, as well as the address to which correspondence is to be sent, must invariably be specified in full in column (8). (Abbreviations sometimes lead to mistakes.) When instruments are to be sent by post, the name of the Post Town as well as the District in which it is situated should be given, and when by railway, the nearest railway station should be distinctly stated. Indents should not be accompanied by forwarding letters unless more explanation is necessary than can be given on the face of the forms.

8. In the case of instruments issued on "cash payment" *prepayment* is necessary, and, whenever it is possible, they, or the railway receipt for them, will be sent by V.-P. P.

9. The carriage of instruments, etc., is *not* paid by the Mathematical Instrument Office, consequently the freight, etc., on all consignments despatched by this office must be paid by the officers receiving them.

10. The forms for indent, A; for requisition "for repairs," B; and for deposit of instruments "no longer required," C; as well as

the rules and regulations and the price list can be obtained *gratis* on application from the Officer in charge, Mathematical Instrument Office.

11. All indents for instruments, etc., required on "book transfer" must be duly approved and countersigned, *viz* :—

Survey of India	-	by Administrative Officers.
Public Works Department	-	„ Superintending Engineers or higher authorities.
Railways	-	„ Managers, Engineers-in-Chief, Chief Store-keepers, Consulting Engineers, or corresponding authorities
Forest Department	-	„ Provincial Conservators, or higher authorities.
Excise Department	-	„ Commissioners.
All other Civil Officers or Military Officers in Civil employ	-	„ Secretaries to Governments and Boards of Revenue, Commissioners of Divisions, Settlement Commissioners or Directors of Land Records and Agriculture.
Ordnance Department	-	„ Director General, Inspectors-General, Officers in charge Arsenal and Depôts, Factories, and Harness and Saddlery Workshop, Madras, or Proof Officer, Balasore.
Military Works Services	-	„ Divisional Commanding Royal Engineers or higher authorities.
Adjutant-General's Department	„	Adjutant-General in India
Quartermaster-General's Department,	-	„ Quartermaster-General in India.
Royal Artillery	-	„ Officers Commanding Brigades, Groups, Batteries, or Companies.
Sappers and Miners	-	„ Commandants of Corps.
	-	„ Divisional Commanders, Northern, Eastern, and Western Commands, or Officers Commanding Divisional Supply, Secunderabad and Burma Divisions.
Supply and Transport Corps	-	„ Directors of Contracts and Registration of Commands and Divisional Store Officer, Burma Division.
Indian Staff College	-	„ Commandant.
Army Signalling Schools	-	„ Inspectors.
All other Military Officers	-	„ Officers Commanding Divisions or Brigades.
Royal Indian Marine	-	„ Director or Deputy Director.
All other Departments	-	„ Heads of Departments.

INSTRUCTIONS FOR REQUISITIONING OFFICERS.

1. All requisitions "for repairs," correspondence and instruments should be addressed to the Officer in charge, Mathematical Instrument Office, 15, Wood Street, Calcutta. Telegrams should be addressed to "Surveys, Inst.," Calcutta.

2. Owing to the very rough treatment which boxes, &c. often receive in transit, particular attention is drawn to the importance of packing all instruments with great care; delicate instruments should, if possible, be despatched *insured*. Each package of a consignment of instruments despatched to the Mathematical Instrument Office should bear the address of the consignor with a distinctive mark and also a serial number which should be given to each package of such consignment; this information should be recorded on railway receipts or bills of lading. Every package should contain a packing note giving a full list of contents and the address of the consignor.

3. The Mathematical Instrument Office cannot undertake the repair of any description of electrical or telegraphic instrument.

4. It is particularly requested that the nature of the repairs required should be entered, as far as possible, in column (3) instead of in a covering letter. No instrument will be repaired unless the Officer in charge considers it worth the cost of the work.

5. Especial attention is requested to the filling up correctly of columns (4) and (5).

6. The mode of transit and address to which instruments are to be consigned by the Mathematical Instrument Office, as well as the address to which correspondence is to be sent, must invariably be specified in full in column (7). (Abbreviations sometimes lead to mistakes). When instruments are to be sent by post, the name of the Post Office as well as the District in which it is situated should be given, and when by railway, the nearest Railway Station should be distinctly stated. Requisitions "for repairs" should not be accompanied by forwarding letters unless more explanation is necessary than can be given on the face of the forms.

7. In the case of instruments repaired on "cash payment" *prepayment* is necessary, and, whenever it is possible, they, or the railway receipt for them, will be sent by V.-P.P.

8. The carriage of instruments is *not* paid by the Mathematical Instrument Office, consequently all consignments sent to it must be *prepaid* by the officers sending them and the freight, &c., on those despatched by the Mathematical Instrument Office must be paid by the officers receiving them.

9. The forms for indent, A; for requisition "for repairs," B; and for deposit of instruments "no longer required," C; as well as the rules and regulations and the price list can be obtained *gratis* on application from the Officer in charge, Mathematical Instrument Office.

INSTRUCTIONS FOR DEPOSITING OFFICERS.

1. All lists of instruments deposited as "no longer required," correspondence and instruments should be addressed to the Officer in charge, Mathematical Instrument Office, 15, Wood Street, Calcutta. Telegrams should be addressed to "Surveys, Inst.," Calcutta.

2. Owing to the very rough treatment which boxes, &c. often receive in transit, particular attention is drawn to the importance of packing all instruments with great care; delicate instruments should, if possible, be despatched *insured*. Each package of a consignment of instruments despatched to the Mathematical Instrument Office should bear the address of the consignor with a distinctive mark and also a serial number which should be given to each package of such consignment; this information should be recorded on railway receipts or bills of lading. Every package should contain a packing note giving a full list of contents and the address of the consignor.

3. The carriage of instruments is *not* paid by the Mathematical Instrument Office, consequently all consignments sent to it must be *prepaid* by the Officers sending them.

4. The Mathematical Instrument Office cannot receive for deposit any description of electrical or telegraphic instrument.

5. It is particularly requested that all the columns on the reverse may be filled in as far as possible.

6. When column (5) is filled in in the negative, a report should be submitted separately.

7. Instruments cannot, as a rule, be received for deposit as "no longer required" from Departments or officers who are not entitled to deal by means of "book transfer," and it is essential before sending such instruments to enquire if it will be convenient to receive them.

8. The forms for indent, A; for requisition "for repairs," B; and for deposit of instruments "no longer required," C; as well as the rules and regulations and the price list can be obtained *gratis* on application from the Officer in charge, Mathematical Instrument Office.

APPENDIX C.

SPECIMEN OF

Area conversion Table.

Table for converting local bighas of 14,400 square feet, or 1,600 square yards, into acres of 4,840 square yards.

Table for converting area of 4,840 square yards into local bighas of 14,400 square feet, or 1,600 square yards.

Local bighas.	Acres of 4,840 square yards.	Local bighas.	Acres of 4,840 square yards.	Acres of 4,840 square yards.	Local bighas of 1,600 square yards.	Acres of 4,840 square yards.	Local bighas of 1,600 square yards.
1	2	3	4	5	6	7	8
1	0.330	56	18.480	1	3.035	56	169.400
2	0.660	57	18.810	2	6.070	57	172.425
3	0.990	58	19.140	3	9.105	58	175.450
4	1.320	59	19.470	4	12.140	59	178.475
5	1.650	60	19.800	5	15.175	60	181.500
6	1.980	61	20.130	6	18.210	61	184.525
7	2.310	62	20.460	7	21.245	62	187.550
8	2.640	63	20.790	8	24.280	63	190.575
9	2.970	64	21.120	9	27.315	64	193.600
10	3.300	65	21.450	10	30.350	65	196.625
11	3.630	66	21.780	11	33.385	66	199.650
12	3.960	67	22.110	12	36.420	67	202.675
13	4.290	68	22.440	13	39.455	68	205.700
14	4.620	69	22.770	14	42.490	69	208.725
15	4.950	70	23.100	15	45.525	70	211.750
16	5.280	71	23.430	16	48.560	71	214.775
17	5.610	72	23.760	17	51.595	72	217.800
18	5.940	73	24.090	18	54.630	73	220.825
19	6.270	74	24.420	19	57.665	74	223.850
20	6.600	75	24.750	20	60.700	75	226.875
21	6.930	76	25.080	21	63.735	76	229.900
22	7.260	77	25.410	22	66.770	77	232.925
23	7.590	78	25.740	23	69.805	78	235.950
24	7.920	79	26.070	24	72.840	79	238.975
25	8.250	80	26.400	25	75.875	80	242.000
26	8.580	81	26.730	26	78.910	81	245.025
27	8.910	82	27.060	27	81.945	82	248.050
28	9.240	83	27.390	28	84.980	83	251.075
29	9.570	84	27.720	29	88.015	84	254.100
30	9.900	85	28.050	30	91.050	85	257.125
31	10.230	86	28.380	31	94.085	86	260.150
32	10.560	87	28.710	32	97.120	87	263.175
33	10.890	88	29.040	33	100.155	88	266.200
34	11.220	89	29.370	34	103.190	89	269.225
35	11.550	90	29.700	35	106.225	90	272.250
36	11.880	91	30.030	36	109.260	91	275.275
37	12.210	92	30.360	37	112.295	92	278.300
38	12.540	93	30.690	38	115.330	93	281.325
39	12.870	94	31.020	39	118.365	94	284.350
40	13.200	95	31.350	40	121.400	95	287.375
41	13.530	96	31.680	41	124.435	96	290.400
42	13.860	97	32.010	42	127.470	97	293.425
43	14.190	98	32.340	43	130.505	98	296.450
44	14.520	99	32.670	44	133.540	99	299.475
45	14.850	100	33.000	45	136.575	100	302.500
46	15.180	200	66.000	46	139.610	200	605.000
47	15.510	300	99.000	47	142.645	300	907.500
48	15.840	400	132.000	48	145.680	400	1,210.000
49	16.170	500	165.000	49	148.715	500	1,512.500
50	16.500	600	198.000	50	151.750	600	1,815.000
51	16.830	700	231.000	51	154.785	700	2,117.500
52	17.160	800	264.000	52	157.820	800	2,420.000
53	17.490	900	297.000	53	160.855	900	2,722.500
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